

IMPORTANT BIRD AND BIODIVERSITY AREAS IN INDIA

Priority sites for Conservation

Revised and updated 2nd Edition Vol. II



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**Second Edition: Revised and Updated
Volume II**

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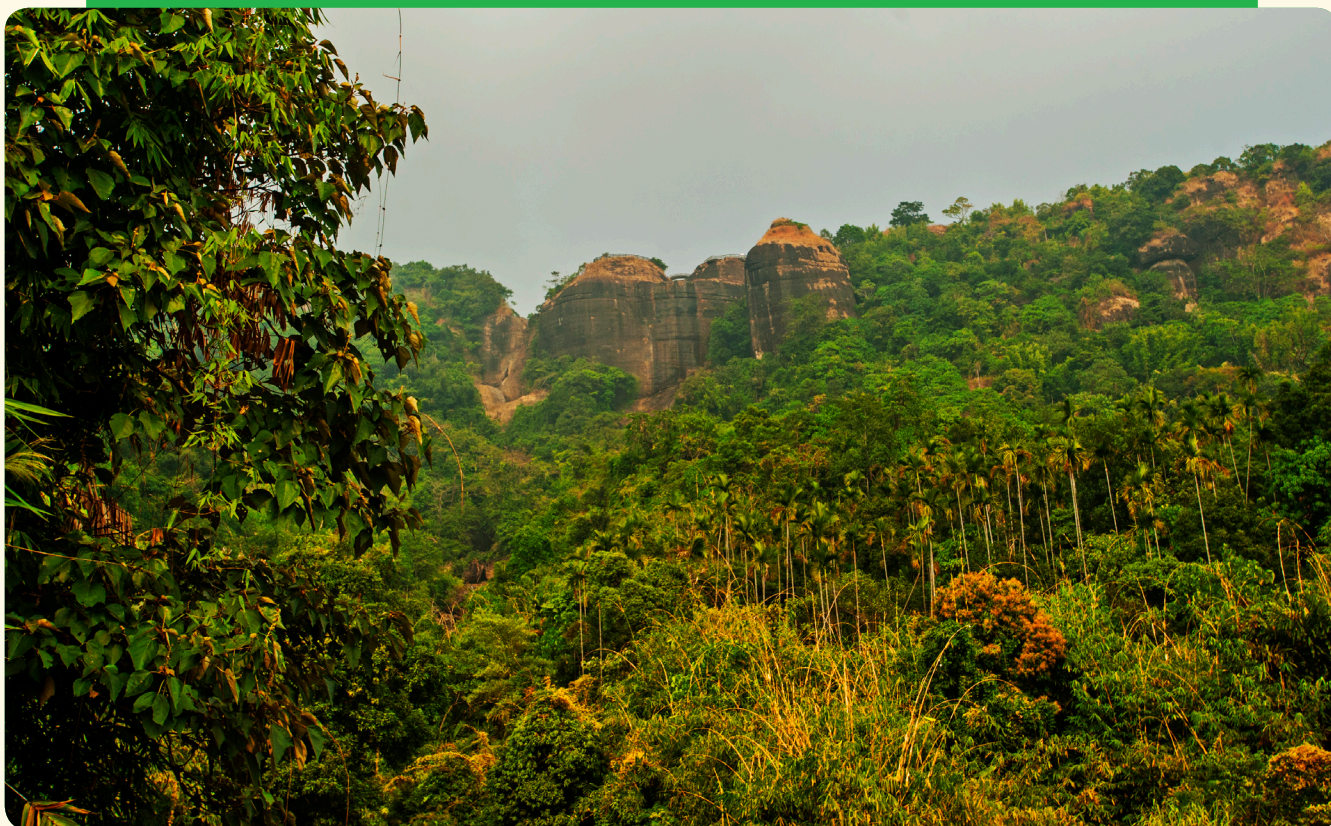
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MEGHALAYA

IN-ML



Chherapunjee is the wettest place in the world, with 11,000 mm annual rainfall

Meghalaya (25° 02'–26° 07' N and 89° 49'–92° 50' E) is literally 'the abode of the clouds'. It became an autonomous State on April 2, 1970 and was declared a state of the Indian Union on January 21, 1972. The State has a geographical area of 22,42,900 ha (0.7% of the country's geographical area). Topographically, Meghalaya is a plateau except for narrow strips of plains in the northern, western and southern parts.

Shillong, the capital, is situated in the centre of a high plateau. The elevation ranges from less than 100 m to 1,961 m. The highest peak is the Laitkor Peak or Shillong Peak (1,961m). Nokrek is the highest peak in the Garo Hills. As per the Census records, the State is the homeland of three of India's ancient hill communities – the Khasis, the Jaintias and the Garos. Khasi language is spoken by the Khasis and Jaintias. Garo Hills is the homeland of the Garos who prefer to call themselves 'Achik'.

The western part of the State is warmer where temperature ranges between 12 °C to 33 °C. The central upland is relatively cooler where minimum temperature goes down to 2 °C and the maximum temperature is around 24 °C. The average annual rainfall in the State varies from 4,000 mm to 11,436 mm. Cherrapunji (or Sohra) and Mawsynram in Meghalaya are well known among the highest rainfall

spots of the world. The major rivers of Meghalaya include the Simsang, Manda and Ganol in the Garo Hills and the Jadukata, Umiam, Umtrew, Lubha and Kopili in Khasi and Jaintia Hills.

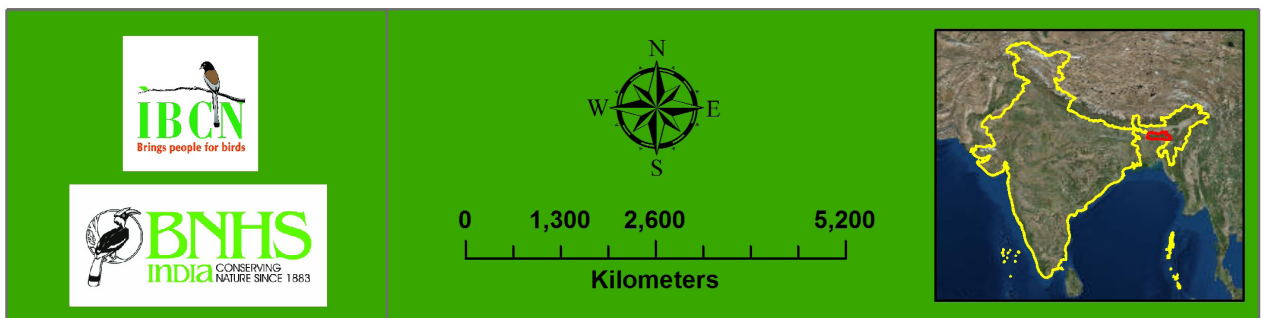
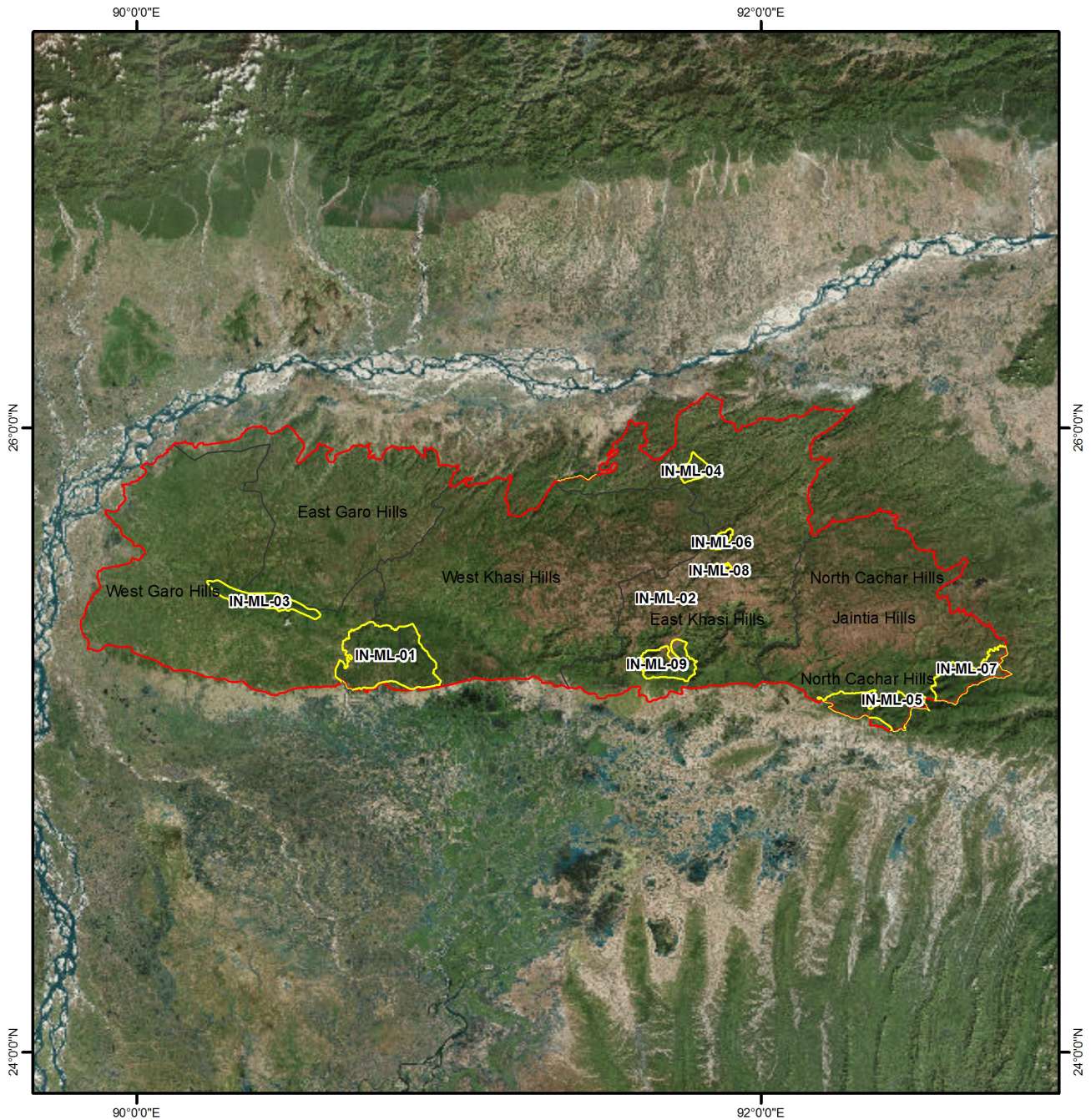
The total human population of Meghalaya is 2.96 million, which is 0.2% of India's population (2011 Census). Nearly 80% of the population lives in the rural areas. Meghalaya's population is predominantly tribal (86.15%). As per the 2011 Census, the population density of the State is 132 persons per sq. km.

Vegetation

As per the Forest Survey of India report of 2013, Meghalaya ranks sixth amongst the Indian states in respect of percentage of geographical area under forest cover. The forests of Meghalaya are rich in biodiversity and endowed with rare species of orchids and medicinal plants. The major forest types in Meghalaya are Subtropical Pine, Subtropical Broadleaf, Tropical Wet Evergreen, Tropical Semi-Evergreen, and Tropical Moist Deciduous Forests. Sacred groves mostly located in Khasi and Jaintia Hills represent the climax vegetation of the area (Ministry of Environment and Forest 2001). According to Haridasan and Rao (1985), the forest vegetation of Meghalaya consists of

Important Bird Areas in Meghalaya

IN-ML



Tropical Evergreen Forest in the low-lying areas with high rainfall; Tropical Semi-Evergreen Forest up to the elevation of about 1,200 m with annual rainfall between 1,500 to 2,000 mm; Tropical Moist Deciduous Forest in areas with less than 1,500 mm rainfall; Grassland on the tops of Khasi, Jaintia and Garo Hills; isolated patches of Temperate Forest along the southern slopes of Khasi and Jaintia Hills; and Subtropical Pine Forest with pure stands of *Pinus kesiya* confined to the higher reaches of the Shillong Plateau. Bamboos and canes are found in undisturbed forests. Meghalaya has many endemic plant species, the most famous being the carnivorous pitcher plant *Nepenthes khasiana*.

The total recorded forest area in the State is 949,600 ha, which is 42.3 % of the geographical area of the State and 1.2% of the country's forest area (Ministry of Environment and Forest 2013). According to legal classification, reserved forests constitute 111,300 ha (11.7%), protected forests 12,00 ha (0.1%) and unclassified forests constitute 837,100 ha (88.2%) of the total forests of the State. The control of unclassified forests mostly rests with the community, private individuals and the Autonomous District Councils of the Khasi, Jaintia and Garo Hills. Dense forest constitutes 45.2%, open forest 31.88% while non-forest area constitutes 21.26 and scrub area is 1.66% of the total geographical area of the State (Ministry of Environment and Forest 2013).

Shifting cultivation or *jhumming* is widely prevalent in the State. It is believed that the loss of forest cover in the State is mainly due to shifting cultivation. In a study undertaken by the Forest Survey of India in 1999, it is estimated that about 0.18 million ha area has been affected by this practice from 1987 to 1997. The area currently affected by shifting cultivation is estimated at 0.11 million ha.

IBAs AND PROTECTED AREAS

Meghalaya has two national parks and five wildlife sanctuaries. Not all protected areas of Meghalaya fulfill the IBA criteria. All the seven protected areas are small. The largest is the Balpakram National Park with around 20,000 ha and the smallest is the Baghmara Pitcher Plant Sanctuary of 100 ha. However, several patches of forests are protected as sacred groves. Mawphlang Sacred Grove is considered as an IBA based on the presence of threatened, restricted range and biome species (Lahkar 2002). More than 90% of the land belongs to local communities. There are several community-protected areas in Meghalaya where large scale commercial exploitation of forest produce is not allowed, but local villagers are free to use forest resources.

The Balpakram complex includes the Balpakram National Park, Siju Wildlife Sanctuary and Baghmara Reserve Forest. The Nokrek National Park is very small (6,800



ARJIT SAHU

Living root bridges across narrow streams are unique features of Meghalaya

IBAs of MEGHALAYA		
IBA site codes	IBA site names	IBA criteria
IN-ML-01	Balpakram Complex	A1, A2
IN-ML-02	Mawphlang Sacred Grove	A1, A2
IN-ML-03	Nokrek National Park	A1, A2, A3
IN-ML-04	Nongkhylllem Wildlife Sanctuary	A1
IN-ML-05	Norpuh Wildlife Sanctuary	A1, A2
IN-ML-06	Riat Khwan-Umiam Lake	A1, A2
IN-ML-07	Saipung Reserve Forest	Data Deficient
IN-ML-08	Upper Shillong	A1, A2
IN-ML-09	Cherapunji: Cliffs, Gorges and Sacred Groves	A1, A2

LIST OF THREATENED BIRDS WITH IBA SITE CODES		
CRITICALLY ENDANGERED		
White-rumped Vulture	<i>Gyps bengalensis</i>	IN-ML-01, 03, 04
Slender-billed Vulture	<i>Gyps tenuirostris</i>	IN-ML-01, 03, 04
Red-headed Vulture	<i>Aegypius calvus</i>	IN-ML-04
ENDANGERED		
Greater Adjutant	<i>Leptoptilos dubius</i>	IN-ML-04
White-winged Duck	<i>Asarcornis scutulata</i>	IN-ML-01
Black-bellied Tern	<i>Sterna acuticauda</i>	Not in any IBA
Yellow-breasted Bunting	<i>Emberiza aureola</i>	IN-ML-01, 03
VULNERABLE		
Lesser Adjutant	<i>Leptoptilos javanicus</i>	IN-ML-01, 03
Greater Spotted Eagle	<i>Clanga clanga</i>	IN-ML-06
Wood Snipe	<i>Gallinago nemoricola</i>	IN-ML-02, 04 (?)
Dark-rumped Swift	<i>Apus acuticauda</i>	IN-ML-09
Rufous-necked Hornbill	<i>Aceros nipalensis</i>	IN-ML-05
Tawny-breasted Wren-babbler	<i>Spelaeorinis longicaudatus</i>	IN-ML-02, 05, 08, 09
NEAR THREATENED		
Oriental Darter	<i>Anhinga melanogaster</i>	IN-ML-01, 03, 04, 06
Ferruginous Duck	<i>Aythya nyroca</i>	IN-ML- 06
Painted Stork	<i>Mycteria leucocephala</i>	IN-ML-04
Lesser Fish-eagle	<i>Ichthyophaga humilis</i>	IN-ML-03, 04
River Lapwing	<i>Vanellus duvaucelii</i>	IN-ML-01, 03
White-cheeked Hill-partridge	<i>Arborophila atrogularis</i>	IN-ML-01, 03, 04, 05
Grey-headed Parakeet	<i>Psittacula finchii</i>	IN-ML-01, 05
Red-breasted Parakeet	<i>Psittacula alexandrii</i>	IN-ML-01, 03
Blyth's Kingfisher	<i>Alcedo hercules</i>	IN-ML-02, 04, 08
Great Pied Hornbill	<i>Buceros bicornis</i>	IN-ML-01, 03, 04, 05
Austen's Brown Hornbill	<i>Anorrhinus austeni</i>	IN-ML-04 (?)

ha) but it serves as the core area of the Nokrek Biosphere Reserve (82,000 ha). The area of the National Park has been acquired by purchase of land from the local communities by the Government of Meghalaya. The Nongkhylllem Wildlife Sanctuary (3,500 ha) and Nongkhylllem Reserve Forest (9,691 ha) show high avian diversity (Choudhury 1998). There is a proposal by the State Government to acquire a portion of the community forest (c. 2,300 ha), west of the Umtrew river and declare it as a sanctuary. Only a very

small portion has been acquired up till now (2014). The Saipung Reserve Forest, the oldest and largest notified reserve in the state of Meghalaya, having been gazetted in 1877, is located near the North Cachar Hills (Dima Hasao) district of the neighbouring state of Assam. Saipung is relatively less accessible. The area is rich in wildlife but information on bird life is insufficient, so it is treated as Data Deficient. Upper Shillong is another IBA site close to Shillong, the capital of Meghalaya.



Slash-and-burn (*jhumming*) method of cultivation is no more sustainable due to huge increase in human population. Due to pressure on land, inter-jhumming cycle in some areas have been reduced to five years, from normally 23-30 years.

AVIFAUNA

Despite its relatively small size, Meghalaya is rich in bird life. So far 615 species have been listed and another 115 species may also occur as stray or vagrant (Choudhury 2014). Among the Threatened species, the following have been reported from the State: Slender-billed Vulture *Gyps tenuirostris*, Greater Adjutant *Leptoptilos dubius*, White-winged Duck *Asarcornis scutulata*, Pallas's Fish-eagle *Haliaeetus leucoryphus*, Greater Spotted Eagle *Clanga clanga*, Swamp Francolin *Francolinus gularis*, Wood Snipe *Gallinago nemoricola*, Purple Wood-pigeon *Columba punicea*, Dark-rumped or Khasi Hills Swift *Apus acuticauda*, Rufous-necked Hornbill *Aceros nipalensis*, Fea's Thrush (Grey-sided Thrush) *Turdus feae*, Marsh Babbler *Pellorneum palustre*, Tawny-breasted Wren-Babbler *Spelaeornis longicaudatus*, Slender-billed Babbler *Turdoides longirostris*, and Beautiful

Nuthatch *Sitta formosa*. Many species have historical records (e.g., Bengal Florican *Houbaropsis bengalensis*, of which there is a specimen in UMMZ from West Garo Hills; Choudhury 2014). Proper systematic surveys on bird life are required in the State.

THREATENED BIRDS FOR WHICH MEGHALAYA IS IMPORTANT

Greater Adjutant *Leptoptilos dubius* Endangered

Widely but sparsely distributed in the adjacent Brahmaputra Valley of Assam. In Meghalaya, recorded from the Baridua area in the extreme north near Assam's capital, Guwahati (Choudhury 1996a). It is now frequently seen in the area, especially in flight and in garbage dumps. The garbage dumps have grown significantly due to development and increased human settlements in the area.

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Grey Sibia	<i>Heterophasia gracilis</i>	IN-ML-01, 02, 03, 05, 08
Dark-rumped Swift	<i>Apus acuticauda</i>	IN-ML-09
Tawny-breasted Wren-babbler	<i>Spelaeornis longicaudatus</i>	IN-ML-05, 08
White-naped Yuhina	<i>Yuhina bakeri</i>	IN-ML-05, 06, 08
Yellow-vented Warbler	<i>Phylloscopus cantator</i>	IN-ML-05, 06, 08

White-winged Duck *Asarcornis scutulata*

Endangered

In Meghalaya, one IBA is important for this Duck: Balpakram Complex (Choudhury 1996b). There is also historical record from this area (Green 1992), which is also the western-most record of the species so far.

Dark-rumped or Khasi Hills Swift *Apus acuticauda*

Vulnerable

The Dark-rumped Swift breeds in a few colonies in the Eastern Himalayas of Bhutan, possibly in Nepal, and the hills of Meghalaya, apparently dispersing during the winter (BirdLife International 2001). It is one of the nine threatened

restricted range species of this EBA have been reported from the State, but more are likely to be found after proper surveys.

Biomes

Three biomes are found in Meghalaya, thanks to its habitat and altitudinal diversity. Below c. 1,000 m, Biome-9 (Indo-Chinese Tropical Moist Forest) is found, with its lowland Evergreen Rain Forest, Semi-Evergreen Rain Forests and Moist Deciduous Forests. In this biome, BirdLife International (undated) has listed 19 species that are representative. Many are found in Meghalaya. Above 1,000 and below 2,000 m, Biome-8 (Sino-Himalayan Subtropical Forest) is found, with its 95 bird species. Pine Forest, Hill



ASAD R. RAHMAN

Despite the law, illegally cut wood is openly sold on the roadside. Illicit wood cutting has deteriorated many community and reserve forests although condition of protected areas is much better

members of the 21 bird species that are entirely restricted to the Eastern Himalaya Endemic Bird Areas (EBA 130). In Meghalaya, it is found in the Khasi Hills (Ali and Ripley 1987). Recently, birds were observed near Cherrapunji, at Lyetkynsew, Khasi hills, about 1,350 m, around the cliffs, and at the Nohkallikai waterfall (Ahmed 2003, BirdLife International 2001).

Restricted Range species

The IBAs of Meghalaya lie in the Eastern Himalayas (Endemic Bird Area 130) (Stattersfield *et al.* 1998). Five

Evergreen Forest and Lower Montane Rain Forests are found in this biome. The narrow plains in the Garo Hills are a part of the Indo-Gangetic Plains (Biome-12).

SOME NEW RECORDS TO MEGHALAYA

Black-necked Grebe *Podiceps nigricollis*

A bird was seen in Umiam Lake in January 1998. Two more were also there but could not be observed in details for identification confirmation (Choudhury 2014). This was the first record of this species for Meghalaya.

ASAD R. RAHMANI



Small-scale illegal coal mining, called rat-hole mining (above), by local people is playing havoc with the ecology of Meghalaya. Many times, such coal is kept near fresh-water streams (below), resulting in water pollution. Underage boys were seen employed in many such rat holes

ASAD R. RAHMANI



Red-necked Grebe *Podiceps grisegena*

Eight birds, four together and rest scattered were seen in Umiam Lake on 23 January 1998 (Choudhury 1998, 2014). This was also the first record of this species in Meghalaya.

**Great-tufted Myna or
White-vented Myna** *Acridotheres grandis*

From India this bird is recorded from Nagaland, Manipur, Mizoram, Arunachal Pradesh and Assam. However, Choudhury (2005) spotted two Great-tufted Myna at 14th mile area between Jorabat and Byrnihat, while travelling to Shillong from Guwahati. The birds flew from Meghalaya to Assam as the area has been marked as interstate boundary.

Ashy Minivet *Pericrocotus divaricatus*

While conducting a bird survey in Nokrek National Park, Lakhar *et al.* (2006) sighted a female minivet near Daribok in 2001 but failed to identify it. Then in 2002 they sighted another bird in a forest patch along the Dareng river in the southern range of Nokrek and identified it to be Ashy Minivet.

THREATS AND CONSERVATION ISSUES

As more than 90% of the land belongs to the local communities, community participation in conservation, otherwise also necessary, is extremely important in Meghalaya. The key threats to the birds of these areas



Pitcher Plant in Baghmara and other areas of Meghalaya is one of the near endemic species.
IBAs not only protect birds but all biodiversity, including plants

This was the first record of this species for Meghalaya.

Black Stork *Ciconia nigra*

First recorded in Umiam Lake in January 1999 during mid-winter Waterfowl Census (Choudhury 2002). Lahkar *et al.* (2006) sighted a lone stork in flight at Jatragre, near Chokpot, southern range of Nokrek on January 2, 2002. On observing its morphological characteristics they confirmed it to be a Black Stork.

Black-capped Kingfisher *Halcyon pileata*

A bird was seen near Prang river in Narpuh (block I) reserve forest on 15 April 1997 (Choudhury 2014). A first record for Meghalaya.

are moderate habitat loss (e.g., due to logging, agriculture, overgrazing) and hunting.

Insurgency

This is one of the major problems in the northeastern states that restrict fieldwork in many areas. Garo Hills is the worst affected.

Dam and hydroelectric power projects

According to the Water Resources Information System of India (India-WRIS WebGIS, accessed in January 2015), there are seven major dams in Meghalaya. They are on Kopila, Umtru, Myntdu and Umiam rivers, located in Khasi Hills and Jaintia Hills. Most of them are hydroelectric dams,

some with additional use for irrigation. Some of them are quite old and were constructed nearly 50 years ago. For example, Umtru Dam on the Umtru river was completed in 1957, and two large dams were completed in 1965. A dam on the Simsang river was proposed in 2005 and finally sanctioned in 2008. Construction of this dam is going on, while a proposal of a major cement plant near Siju was shelved due to protests from environmental groups. In Nongkhyllem, a hydroelectric power project was set up long before the declaration of the sanctuary but fortunately, no submergence of forest land was necessary.

Tree cutting for fuel-wood

This problem is very common in Meghalaya and most of the IBAs face it. For example, in Balpakram National Park, there are about 500 inhabitants, mostly Garos, in the six villages within the protected area. While it may not be desirable to evict them from their ancestral home, environmental awareness and eco-development programmes should be started to minimize the damage to the forest. Timber smuggling is also a major problem. The Park does not have sufficient staff to patrol the forest.

Shifting Cultivation

Jhum or shifting cultivation is the primary agricultural practice in the hilly ranges. Owing to the growing human population, the periodicity of *jhumming* has decreased to three–five years, not leaving much time for the vegetation to heal. It has been found that repeated *jhumming* increases the silt load. Shifting cultivation has, for example, heavily disturbed the vegetation on the lower slopes of the Tura Range. There is a need to reduce shifting cultivation, especially on steep slopes and in the areas important for biodiversity conservation.

Hunting

Hunting is still a major problem in Meghalaya (Choudhury, 2003). Teenagers are often seen with catapults, killing small birds. Environmental awareness in schools and colleges, backed by strong legislation and community participation would help in reducing this unfortunate loss of bird life.

Coal and limestone Mining

Coal and limestone minings are common practice in the state, and this affects the water bodies, especially the south

flowing rivers. Both open cast and traditional ‘rat hole’ mining are seen.

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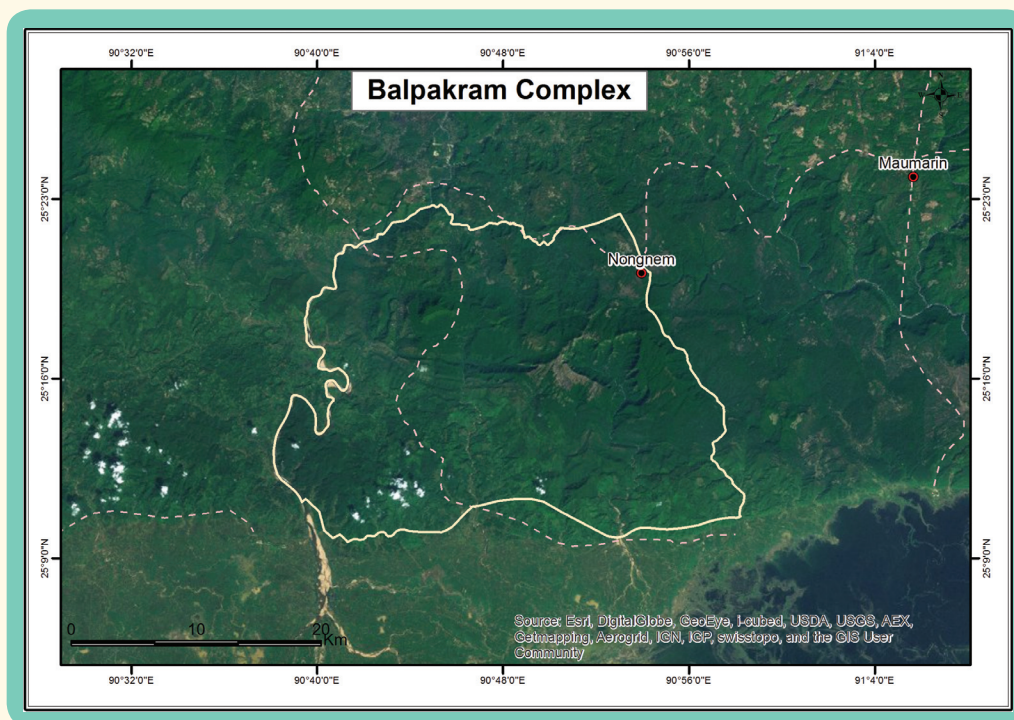
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BALPAKRAM COMPLEX

IBA Site Code	: IN-ML-01	Altitude	: 50–1,026 msl
State	: Meghalaya	Rainfall	: >5,000 mm
District	: South Garo Hills	Temperature	: 5 °C to 34 °C
Coordinates	: 25° 14' 46" N, 90° 53' 24" E	Biogeographic Zone	: Northeast
Ownership	: State	Habitats	: Tropical Wet Evergreen Forest, Tropical Moist Deciduous Forest, Tropical Grassland
Area	: 30,000 ha		

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalaya)

PROTECTION STATUS: Siju Wildlife Sanctuary, established 1979; National Park, established February, 1986.



GENERAL DESCRIPTION

This site includes two protected areas, a reserve forest and adjacent areas in South Garo Hills district in western Meghalaya. The protected areas are Balpakram National Park (22,000 ha) and Siju Wildlife Sanctuary (518 ha), while the reserve forest is Baghmara (4,429 ha). The community forest that links Baghmara and Balpakram is also included. The first two are contiguous, while the reserve forest is linked to the complex through unclassified community-owned forests. In Garo, Balpakram means “the land of eternal winds”. The Garos believe that it is the land of departed souls. The site, well known for its beautiful scenery, contains extensive tracts of relatively undisturbed forest-clad hills and gorges. Baghmara town also houses the Pitcher Plant Wildlife Sanctuary. Locally known as *memang*

koksi, this carnivorous plant is also seen alongside some of the many streams that run all over the complex.

Balpakram comprises a c. 700 ha plateau at 797 msl, from which originate a number of rivers that have cut deep gorges (up to nearly 800 m) and valleys in various directions. Mahadeo is one such spectacular canyon. The area is rich in minerals, notably coal, limestone, mica, feldspar, and beryl. Siju Wildlife Sanctuary is contiguous with Balpakram and is also hilly, with the River Simsang along its western boundary. The famous Siju cave is just outside the boundary of the sanctuary. Baghmara Reserve Forest, located adjacent to Baghmara town, touches the India-Bangladesh international border. It has low hilly undulating terrain with marshy depressions. All three areas are treated here as one IBA.

As the area is relatively remote, the forest cover is still intact. Seven forest types have been identified in this IBA: i. Tropical Evergreen on the gorges and steep slopes; ii. Tropical Semi-evergreen or Mixed Evergreen in depressions on the plateau and surrounded by grassland or secondary forest; iii. Riverine forest in areas subject to periodic inundation; iv. grassland and tree savanna confined to Rongcheng and Lumsorjong areas and maintained through browsing and burning; v. Tropical Deciduous forest, which is a successional, man-made forest; vi. Bamboo forest, dominated by *Bambusa* sp. and *Melocanna bambusifolia*; and vii. secondary formations in areas of shifting cultivation (Kumar & Rao 1985).

AVIFAUNA

Balpakaram Complex is extremely rich in avian diversity, with about 320 species identified till now (Nimesh Ved, *pers. comm.* 2014). It is the westernmost known distributional limit of the White-winged Wood Duck *Asarcornis scutulata* in its global range (Choudhury 1996a, 2002).

It is also on the movement route of Amur Falcons *Falco amurensis*. The Critically Endangered Slender-billed Vulture *Gyps tenuirostris* and White-rumped Vulture *G. bengalensis* were seen until the late 1990s. Subsequently only an occasional bird was seen (Choudhury 2014).

The site lies in the Eastern Himalaya Endemic Bird Area (EBA 130) and covers at least two biomes: Biome 9 (Indo-Chinese Tropical Moist Forest) and Biome 8 (Sino-Himalayan Temperate Forest). The following are some interesting species of Balpakram Complex: Mountain Bamboo-partridge *Bambusicola fytchii*, White-cheeked Partridge *Arborophila atrogularis*, Kaleej Pheasant *Lophura leucomelanos*, Grey Peacock-pheasant *Polyplectron bicalcaratum*, Grey-headed Parakeet *Psittacula finschii*, Striated Bulbul *Pycnonotus striatus*, White-throated Bulbul *Alphoixus flaveolus*, Himalayan Black Bulbul *Hypsipetes leucocephalus*, Blue-throated Barbet *Megalaima asiatica*, Bay Woodpecker *Blythipicus pyrrhotis*, Short-billed Minivet *Pericrocotus brevirostris*, Orange-bellied Leafbird *Chloropsis hardwickii*, Slaty-backed Forktail *Enicurus schistaceus*, Slaty-bellied Tesia *Tesia olivea*, Grey-bellied Tesia or Yellow-browed Tesia *T. cyaniventer*, Streaked Spiderhunter *Arachnothera magna*, Maroon Oriole *Oriolus traillii*, Grey Treepie *Dendrocitta formosa*, Nepal House-martin *Delichon nipalense*, Pale-headed Woodpecker *Gecinulus grantia*, Black-backed Forktail *Enicurus immaculatus*, Lesser Necklaced Laughingthrush *Leucodioptron monileger*, Greater Necklaced Laughingthrush *Garrulax pectoralis*, and Sultan Tit *Melanochlora sultanea*. Other interesting birds recorded are Collared Scops-owl *Otus lettia*, Violet Cuckoo *Chrysococcyx xanthorhynchus*, and Thick-billed Green-pigeon *Treron curvirostra*.

CRITICALLY ENDANGERED

Slender-billed Vulture	<i>Gyps tenuirostris</i>
White-rumped Vulture	<i>Gyps bengalensis</i>

ENDANGERED

White-winged Duck	<i>Asarcornis scutulata</i>
Yellow-breasted Bunting	<i>Emberiza aureola</i>

VULNERABLE

Lesser Adjutant	<i>Leptoptilos javanicus</i>
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NEAR THREATENED

White-cheeked Partridge	<i>Arborophila atrogularis</i>
Oriental Darter	<i>Anhinga melanogaster</i>
Great Pied Hornbill	<i>Buceros bicornis</i>
River Lapwing	<i>Vanellus duvaucelii</i>
Red-breasted Parakeet	<i>Psittacula alexandri</i>
Grey-headed Parakeet	<i>Psittacula finschii</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Grey Sibia	<i>Heterophasia gracilis</i>
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BIOME 05: EURASIAN HIGH MOUNTANE (ALPINE AND TIBETAN)

Tickell's Leaf-warbler	<i>Phylloscopus affinis</i>
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BIOME 7: SINO-HIMALAYAN TEMPERATE FOREST

Large-billed Leaf-warbler	<i>Phylloscopus magnirostris</i>
Chestnut-crowned Bush-warbler	<i>Cettia major</i>
Rufous-gorgeted Flycatcher	<i>Ficedula strophia</i>
Rufous-bellied Niltava	<i>Niltava sundara</i>
Fire-tailed Sunbird	<i>Aethopyga ignicauda</i>
Rufous Sibia	<i>Heterophasia capistrata</i>
Nepal House-martin	<i>Delichon nipalense</i>

BIOME-8: SINO-HIMALAYAN SUBTROPICAL FOREST

Rosy Minivet	<i>Pericrocotus roseus</i>
Short-billed Minivet	<i>Pericrocotus brevirostris</i>
Blue-throated Barbet	<i>Megalaima asiatica</i>
Slaty-backed Forktail	<i>Enicurus schistaceus</i>
Bay Woodpecker	<i>Blythipicus pyrrhotis</i>
Maroon Oriole	<i>Oriolus traillii</i>
Grey Treepie	<i>Dendrocitta formosae</i>
Black-winged Cuckooshrike	<i>Coracina melaschistos</i>
Short-billed Minivet	<i>Pericrocotus brevirostris</i>
Orange-bellied Leafbird	<i>Chloropsis hardwickii</i>
Flavescent Bulbul	<i>Pycnonotus flavescent</i>
White-throated Bulbul	<i>Alphoixus flaveolus</i>
Rufous-backed Sibia	<i>Heterophasia annectens</i>
Nepal Fulvetta	<i>Alcippe nipalensis</i>
Striated Yuhina	<i>Yuhina castaniceps</i>
Blue-winged Minla	<i>Minla cyanouroptera</i>
Streaked Spiderhunter	<i>Arachnothera magna</i>
Black-throated Sunbird	<i>Aethopyga saturata</i>

BIOME-9: INDO-CHINESE TROPICAL MOIST FOREST

Grey Peacock-pheasant	<i>Polyplectron bicalcaratum</i>
Lesser Necklaced Laughingthrush	<i>Leucodioptron monileger</i>
Greater Necklaced Laughingthrush	<i>Garrulax pectoralis</i>
Rufous-necked Laughingthrush	<i>Garrulax ruficollis</i>
Olive Bulbul	<i>Iole virescens</i>

BIOME 11: INDO-MALAYAN TROPICAL DRY ZONE

Ashy Woodswallow	<i>Artamus fuscus</i>
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OTHER KEY FAUNA

The area supports diverse fauna and is an important refuge for Asian Elephant *Elephas maximus* and Tiger *Panthera tigris*. Seven species of primates are present, namely Assamese Macaque *Macaca assamensis*, Rhesus Macaque *M. mulatta*, Stump-tailed macaque *M. arctoides*, Pig-tailed Macaque *M. nemestrina leonina*, Capped Langur *Trachypithecus pileata*, Hoolock Gibbon *Hoolock hoolock*, and Bengal Slow Loris *Nycticebus bengalensis*. Carnivores include Wild Dog *Cuon alpinus*, Asiatic Black Bear *Ursus thibetanus*, Sun Bear *Helarctos malayanus*, Leopard *Panthera pardus*, Clouded Leopard *Neofelis nebulosa*, Asiatic Golden Cat *Catopuma temmincki*, Marbled Cat *Pardofelis marmorata*, Jungle Cat *Felis chaus*, and Red Panda *Ailurus fulgens* (Choudhury 1996b, 2009) and a number of other small felids. Ungulates include Indian Wild Pig *Sus scrofa*, Sambar *Rusa unicolor*, Barking Deer or Indian Muntjac *Muntiacus muntjak*, Wild Buffalo *Bubalus arnee* (= *bubalis*), Gaur *Bos gaurus*, and Red Serow *Capricornis rubidus*. There have been no records of Red Panda in recent years. The area supports a fairly large population of Asian Elephant (Anon. 2002, Choudhury 1999). There are recent records of endangered Hispid Hare *Caprolagus hispidus* in the southern part of this complex (Kamal Medhi in Choudhury 2013) and a significant recent photographic record of Small-

toothed Palm Civet *Arctogalidia trivirgata* from Balpakram, among a handful of known sites in India (Kashmira Kakati in Choudhury 2013).

The IBA overlaps with the Baghmara-Balpakram and the Siju-Rewak corridors – two high priority corridors as stated by Gajah (2010). The report also mentions around 1,700 elephants in Garo Hills. The area corresponding with the IBA constitutes the crucial habitat of elephants in Garo Hills..

Sondhi *et al.* (2013) have reported occurrence of 320 species of butterflies in Garo Hills in surveys conducted between 2008 and 2011. Kunte *et al.* (2011) conducted surveys for butterflies during 2008 to 2010 in the Garo Hills. They surveyed butterflies in Balpakram National Park, Baghmara Reserve Forest and Siju Wildlife Sanctuary in southern Garo Hills, and Nokrek National Park in Western Garo Hills. They found 298 butterfly species, eight of which are legally protected under Schedule I (Lycaenidae: *Allotinus drumila drumila*, *Chliaria othona othona* and Nymphalidae: *Charaxes moori sandakanus*, *Elymnias peali*, *Euthalia telchinia*, *Hypolimnas misippus*, *Prothoe franck regalis*, *Symbrenthia silana*) and 33 under Schedule II of the Indian Wildlife (Protection) Act, 1972. They have suggested that the total species richness could be closer to 600–650 species. They reported significant range extensions of two Schedule I species: Peal's Palmfly



ANWARUDDIN CHOUDHURY

A view of Balpakram National Park with Chutmang peak in the background

Elymnias peali and *Prothoe franck regalis*, from the Garo Hills. These findings underscore the significance of the Garo Hills for butterfly conservation in India.

During recent surveys, some plant species of conservation value were observed in Balpakram Complex, such as *Acanthus leucostachys*, *Areca nagensis*, *Diplomeris pulchella*, *Dipteris wallichii*, *Drosera burmannii*, *Fissistigma rubiginosum*, *Gnetum scandens*, *Kayea floribunda*, *Mangifera sylvatica*, *Munronia pinnata*, *Nepenthes khasiana*, *Osbeckia nutans*, *Paphiopedilum venustum*, *Podocarpus neriifolius*, *Rauvolfia serpentina*, *Saurauia cerea*, *Stemona tuberosa*, *Streblus ilicifolius*, and *Ormosia robusta*. To date, more than 650 species have been listed from Siju WLS, Baghmara RF, and Balpakram NP by scientists from Botanical Survey of India, Eastern Regional Centre, Shillong. Their study on “Flora of South Garo Hills” is under progress and they estimate that more than 900 plant species may occur in Balpakram Complex (Sachin Sharma, *pers. comm.* 2014)

LAND USE

- Forest
- Conservation and research

THREATS AND CONSERVATION ISSUES

The expansion of cash-crop plantations in the foothills could be a boon as well as bane in the future unless properly regulated. It will provide an alternative to *jhum* cultivation, but if forest areas are destroyed for such crops, then it will be detrimental (Choudhury 2009). *Jhum* has been reduced in recent years, but conversion of biodiversity-rich patches of natural vegetation to monoculture plantations of rubber and arecanut are major destructors. According to Ved (2013) coal mining and conversion of natural vegetation patches to monoculture plantations are the biggest threats to the landscape.

According to Sondhi *et al.* (2013) the Garo Hills face numerous threats from illegal coal mining, proposed uranium mining, hunting, deforestation and conversion of forest land for agriculture. The destruction of these forests, not only means a significant loss of biodiversity, but it also has a long term impact on the local community by affecting their traditional sources of food and water.

Balpakram is often in the news for notoriety rather than fame. A controversy arose about the actual size of the park, as huge funds were involved in purchasing land for it. Recently, insurgency has become a major issue in the area, with destructive consequences for biodiversity in Garo Hills.

There are about 500 inhabitants, mostly Garo tribals, in the six villages within the protected area. As it may not be desirable to evict them from their ancestral homes, environmental awareness and eco-development programmes

should be started to minimize the damage to the forest.

Balpakram is an important area as it is an elephant corridor. It is suggested that adjacent reserve forests and some forest areas from West Khasi Hills district should be included in the park to improve continuity of habitat and to reduce man-animal conflict.

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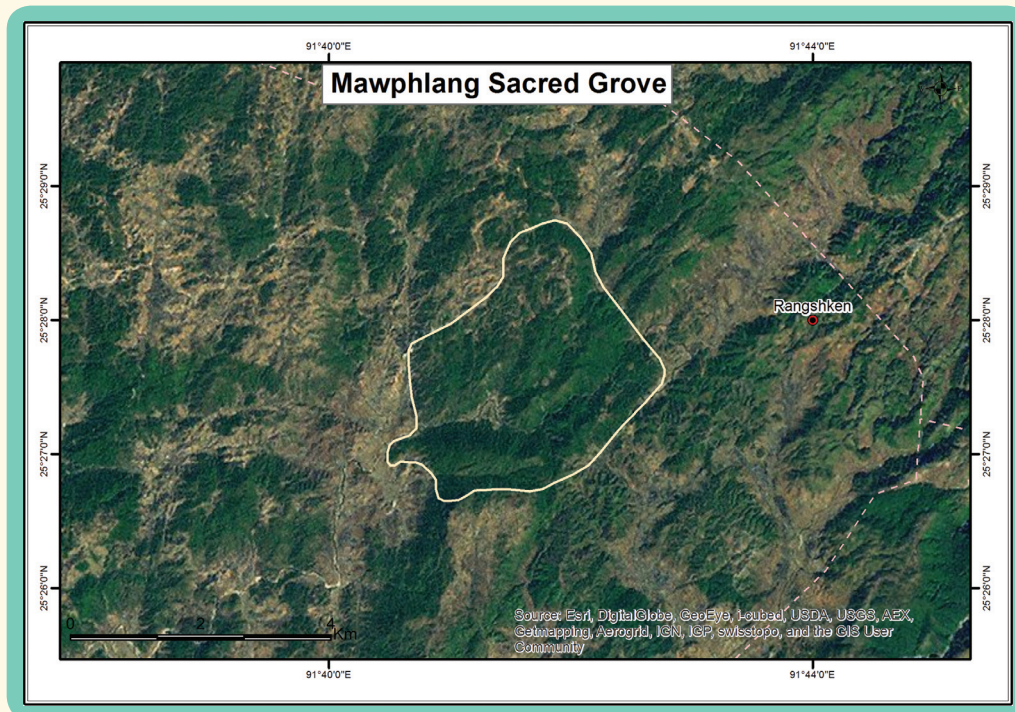
MAWPHLANG SACRED GROVE

IN-ML-02

IBA Site Code	: IN-ML-02	Area	: >100 ha
State	: Meghalaya	Altitude	: c. 1,800 msl
District	: East Khasi Hills	Rainfall	: >2,000 mm
Coordinates	: 25° 28' 00" N, 91° 43' 60" E	Temperature	: 2 °C to 28 °C
Ownership	: Community	Biogeographic Zone	: Northeast
		Habitats	: Subtropical Broadleaf Forest

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalaya)

PROTECTION STATUS: Not officially protected.



GENERAL DESCRIPTION

This IBA site is a sacred grove near Mawphlang village in East Khasi Hills district, 25 km from Shillong, the capital of Meghalaya. The grove is known as 'Law-Lyngdoh'. In Meghalaya, communities have protected small areas of primary forest as sacred groves since time immemorial. The villagers believe that the souls of their ancestors abide in these forests. No one collects fruits, flowers, leaves, or wood from these forests. The villagers believe that this would offend the sylvan deities. The site near Mawphlang is the most well known of the sacred groves, which have remained more or less untouched for centuries. Tourists, researchers, and picnickers visit the area. Two celebrated British botanists studied this site: J.D. Hooker in the 19th century and N.L. Bor in the 20th century. The terrain of the area is undulating and scenic. The grove is spectacular in spring, with two species of rhododendrons in bloom.

Law-Lyngdoh Sacred Grove bears Subtropical Broadleaf Forest, although the Khasi Pine *Pinus kesiya* dominates the surrounding areas. The main flowering trees are *Rhododendron formosum*, *R. arboreum*, and *Pyrus pashia*. Some other noteworthy shrubs and trees include *Quercus griffithii*, *Daphne cannabina*, and *Symplocos chinensis*. Ferns such as *Lindsaea odorata*, and species of *Botrychium*, *Peranema*, *Dryopteris*, and *Polypodium* are recorded (Hajra 1975). The areas surrounding the grove are barren.

AVIFAUNA

About 70 species of birds have been reported from this 300 ha site (Lahkar 2002). Robson (2000) reported the globally Threatened Tawny-breasted Wren-babbler *Spelaornis longicaudatus* at Mawphlang in mid April. It appeared to be common, occurring in non-forest habitat (secondary growth, dense fern growth) as well as in undergrowth in



'Law-Lyngdoh' at Mawphalang is the most well known sacred grove in the northeast

forest. This is the second globally Threatened bird species found on this site, but more are likely to occur. The site lies in Eastern Himalaya Endemic Bird Area (EBA 130), in which Stattersfield *et al.* (1998) have listed 21 restricted-range species. Besides the Tawny-breasted Wren-babbler, Grey Sibia *Heterophasia gracilis* has been seen (Lahkar 2002). There are several past records of the Wood Snipe *Gallinago nemoricola*, another globally Threatened bird. Between 1909 and 1955, several specimens were obtained which are now in the museums of Bombay Natural History Society, Field Museum of Natural History (Chicago) and University of Michigan Museum of Zoology (Choudhury 2014).

BirdLife International (undated) has categorized birds according to biome-restricted assemblages. This site is located in Biome 8 (Sino-Himalayan Subtropical Forest). Ninety-five species are listed in this biome, of which only six have been located at Mawphlang (Lahkar 2002):

VULNERABLE

Tawny-breasted Wren-babbler	<i>Spelaornis longicaudatus</i>
Wood Snipe	<i>Gallinago nemoricola</i>

NEAR THREATENED

Blyth's Kingfisher	<i>Alcedo hercules</i>
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ENDEMIC BIRD AREA 130: EASTERN HIMALAYA

Grey Sibia	<i>Heterophasia gracilis</i>
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Blyth's Kingfisher *Alcedo hercules*, Golden-throated Barbet *Megalaima franklinii*, Black-winged Cuckooshrike *Coracina melaschistos*, Short-billed Minivet *Pericrocotus brevirostris*, Maroon Oriole *Oriolus traillii*, and Grey Treepie *Dendrocitta formosae*. However, more are likely to be found as the habitat is intact.

OTHER KEY FAUNA

As this area is very small (100 ha), and the surrounding areas are totally barren, no large mammal is found. Only small mammals such as squirrels, moles, and rats are found. The following species have been recorded: Himalayan or Short-tailed Mole *Euroscaptor micrura*, Assam Mole-shrew or Szechuan Burrowing Shrew *Anourosorex squamipes*, Pygmy White-toothed Shrew *Suncus etruscus* (a specimen was obtained by W. Koelz in 1953), and Asian Grey Shrew *Crocidura attenuata*. A number of bat specimens were obtained at Mawphlang which are now in the Field Museum of Natural History at Chicago. These include the Woolly Horseshoe Bat *Rhinolophus luctus*, *R. subbadius*, Rufous Horseshoe Bat *R. rouxii*, Intermediate Horseshoe Bat *R. affinis*, Hodgson's Bat *Myotis formosus*, Whiskered Bat *M. mystacinus*, Little or Tibetan Tube-nosed Bat *Murina aurata*, Scully's Tube-nosed Bat *M. tubinaris*, and Round-eared Tube-nosed Bat *M. cyclotis* (Choudhury 2001). Some

other mammals recorded are Yellow-bellied Weasel *Mustela kathiah*, Burmese or Large-toothed Ferret-badger *Melogale personata*, and the rare Marbled Cat *Pardofelis marmorata* (specimen in Field Museum of Natural History at Chicago). The only record of the Indian Porcupine *Hystrix indica* in North-east India was from Mawphlang (the region has Crestless Himalayan Porcupine *H. brachyura* as a common species) (Choudhury 2013).

The flora of conservation concern in Mawphlang Sacred Grove includes primitive ferns such as *Osmunda cinnamomea*, *Botrychium lanuginosum*, *B. virginianum*, *Cyathea spinulosa*, and *C. khasyana*. Among angiosperms, *Magnolia caveana*, *Delphinium altissimum*, *Taxus baccata*, *Indigofera sesquipedalis*, *Begonia josephi*, *Codonopsis viridis*, *Nervilia aragona*, *Jejosephia pusilla*, *Goodyera schlechtendalana*, *Calanthe manii*, *Ajuga lobata*, and *Cymbopogon khasianus* are present (Sachin Sharma, pers. comm. 2014).

LAND USE

- Religious activities
- Forest
- Tourism and recreation

THREATS AND CONSERVATION ISSUES

- Road construction
- Occasional removal of plant materials and Non Timber Forest Produce
- Poaching

Although the IBA is a sacred grove and is maintained as such to a great extent, it is not completely safe or sacred now. A road has been constructed through the grove, damaging part of it. New generations find it difficult to believe in traditional sylvan deities. Most of the people of the surrounding areas have converted to Christianity and have lost touch with their traditional faith (Tiwari *et al.*

1999). The degradation of sacred groves near Cherrapunji should be an eye-opener for environmentalists. It is high time that the State gets involved with the village councils to protect these areas of rich biodiversity. Regardless of belief in deities, such areas are remnants of a vanishing natural and cultural heritage, and their protection would serve to preserve water catchment areas as well.

KEY CONTRIBUTORS

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KEY REFERENCES

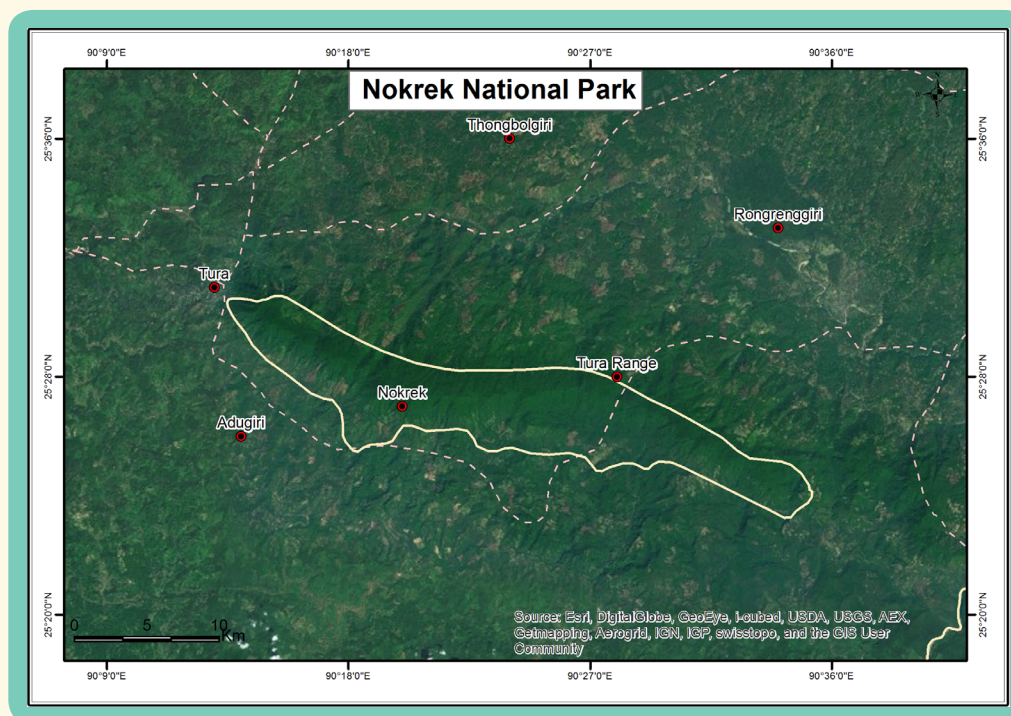
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NOKREK NATIONAL PARK

IBA Site Code	: IN-ML-02	Altitude	: 600–1,412 msl
State	: Meghalaya	Rainfall	: >3,000 mm
District	: East, West, and South Garo Hills	Temperature	: 3 °C to 30 °C
Coordinates	: 25° 30' 36" N, 90° 12' 01" E	Biogeographic Zone	: Northeast
Ownership	: State	Habitats	: Tropical Wet Evergreen Forest, Tropical Semi-evergreen Forest and Subtropical broadleaf Forest
Area	: 4,748 ha		

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalaya), A3 (Biome 8: Sino-Himalayan Subtropical Forest; Biome 9: Indo-Chinese Tropical Moist Forest)

PROTECTION STATUS: National Park, established November, 1985, final notification 1997. It was included in Nokrek Biosphere Reserve by UNESCO on May 27, 2009.



GENERAL DESCRIPTION

Nokrek National Park is located in the Garo Hills of Meghalaya state, covering parts of three districts, i.e. East Garo Hills, West Garo Hills, and South Garo Hills. Nokrek was declared as a national park in 1986, while the final notification was issued in 1997. The park is very small, but important as it serves as the core area of the Nokrek Biosphere Reserve (82,000 ha). The area has been acquired by outright purchase of land from the local communities by the Government of Meghalaya.

The entire site is hilly, its northern aspect with comparatively gentle slopes, while the southern aspect has moderate to very steep slopes. Dense clusters of low hills characterize the area, with a central ridge traversing from

northwest to northeast. This is known as the Tura Ridge.

The Tura Ridge constitutes the backbone of the Garo Hills, which lie at the western end of the Meghalaya plateau. The range has an elevation of c. 1,200 m. Numerous rivers and streams originate from these hills and flow over narrow, rocky beds to join the Brahmaputra and Meghna rivers. Major rivers are Simsang (the longest in the Garo Hills), Ganol, Dareng, Nitai, and Bhugi (Lahkar *et al.* 2002).

The terrain is rocky, and in many places the ridge is devoid of topsoil. Climatic conditions in the Garo Hills are tropical, characterized by high rainfall and humidity during monsoon (April–October).

The forest can be described as Eastern Submontane Semi-Evergreen Forest, grouped under Tropical Semi-evergreen

Forests of Champion & Seth (1968). The hilltop forests are mostly cloud forest, i.e they are covered in clouds most of the time during the monsoon.

Vegetation on the southern slopes is limited to occasional patches of Moist Deciduous forest, dominated by birch *Betula* sp. at higher altitudes and mixed secondary scrub at lower altitudes. Very little vegetation remains on the gentler northern slopes, and is restricted to a narrow fringe of Evergreen and Semi-evergreen forest along the ridge. Varieties of *Citrus indica*, a wild, primitive relative of cultivated citrus species, are present in large numbers (Gogoi 1981).

AVIFAUNA

About 150 bird species have been recorded from Nokrek NP, in a survey of the avifauna (Lahkar *et al.* 2002). One restricted-range species and 36 biome species were recorded from the park during the survey. Though the local people report the occurrence of Rufous-necked Hornbill *Aceros nipalensis*, Lahkar *et al.* (2002) could not find it. Both White-rumped *Gyps bengalensis* and Slender-billed *G. tenuirostris* Vultures were seen. More detailed surveys of this IBA are required. Recent documentation by Sondhi and Bhopale (*unpubl.*) have listed occurrence of 335 species of birds in South Garo Hills.

Birds such as the Black Eagle *Ictinaetus malayensis* and Great Pied Hornbill *Buceros bicornis* can be seen flying above the canopy. Besides the Oriental Pied Hornbill *Anthraceros coronatus* and Great Pied Hornbill, there are White-cheeked Hill-partridge *Arborophila atrogularis*, Kaleej Pheasant *Lophura leucomelanos*, Grey Peacock-pheasant *Polyplectron bicalcaratum*, past records of Critically Endangered White-rumped Vulture *Gyps bengalensis* and Slender-billed Vulture *Gyps tenuirostris*, Grey Sibia *Heterophasia gracilis*, Black Baza *Aviceda leuphotes*, Crested Goshawk *Accipiter trivirgatus*, Oriental Honey-buzzard *Pernis ptilorhynchus*, Pied Falconet *Microhierax melanoleucos*, Rufous-winged Fulvetta *Alcippe castaneiceps* and Red-headed Trogon *Harpactes erythrocephalus*. During migration, Black Storks *Ciconia nigra* and Amur Falcon *Falco amurensis* could be seen flying. At Daribokre, one is unlikely to miss Blyth's or Flavescent Bulbul *Pycnonotus flevescens* (Choudhury 2010).

As the elevation of this site varies from 600 to 1400 m, it falls into two biomes: Biome 9 (Indo-Chinese Tropical Moist Forest, below c. 1,000 m) and Biome 8 (Sino-Himalayan Subtropical Forests, c. 1000 to 2,000 m). BirdLife International (undated) has identified 95 bird species which represent Biome 8 assemblages, and 19 species of Biome 9. During preliminary investigations, eight species of Biome 8 and three species of Biome 9 were seen (Lahkar *et al.* 2002). More species are likely to be present. This site has been selected as an IBA based on the presence of threatened

species and biome-restricted assemblages.

Lahkar *et al.* (2006) reported a lone Black Stork *Ciconia nigra* in flight from Jatragre near Chokpot, in the southern range of Nokrek National Park. This is the first record of this bird from Meghalaya. A single Ashy Minivet *Pericrocotus divaricatus* was also sighted in the northern range of Nokrek NP near Daribok. Other birds sighted during the survey were White-spectacled Warbler *Seicercus affinis*, Grey-headed Canary-flycatcher *Culicicapa ceylonensis*, Streaked Spiderhunter *Arachnothera magna*, Black-faced Warbler *Abroscopus schisticeps*, and Ashy Bulbul *Hemixos flava*.

There is an interesting record of a high elevation Himalayan species, i.e., Gold-naped Finch *Pyrrhoplectes epauletta* that was obtained from this IBA in 1950 by Thakur Rupchand. The specimen is now in University of Michigan Museum of Zoology (Choudhury 2014).

OTHER KEY FAUNA

This IBA is an important part of the range of the Indian Elephant *Elephas maximus*. Primates include Hoolock Gibbon *Hoolock hoolock*, Capped Langur *Trachypithecus pileatus*, Rhesus Macaque *Macaca mulatta*, and Stump-tailed macaque *M. arctoides* (Choudhury 2002). Nokrek is famed for its diversity of large and small cats, ranging from Tiger *Panthera tigris*, Leopard *P. pardus*, Clouded Leopard *Neofelis nebulosa*, Golden Cat *Catopuma temmincki*, to Leopard Cat *Prionailurus bengalensis*. The main Canids are Golden Jackal *Canis aureus* and Wild Dog *Cuon alpinus*. The Asiatic Black Bear *Ursus thibetanus* is another large carnivore. Large Indian Civet *Viverra zibetha*, Small Indian Civet *Viverricula indica*, Himalayan Palm Civet *Paguma larvata*, and Binturong *Arctictis binturong* predate on smaller mammals and birds in the park. Indian Wild Pig *Sus scrofa*, Sambar *Rusa unicolor*, Barking Deer or Indian Muntjac *Muntiacus muntjak*, Himalayan Serow *Capricornis thar*, and Gaur *Bos gaurus* are the major ungulates (Gogoi 1981).

In November 2008, Choudhury (2010) heard the loud calls of at least 13 troops of Hoolock Gibbon and saw the large troops of the rare Stump-tailed Macaque *Macaca arctoides* during his visit to Nokrek. It was here that Dr John R. Lao, the Tura-based doctor had mistakenly shot a Red Panda *Ailurus fulgens* in the 1960s, which put the ecologists in a fix! The record of the Red Panda (an inhabitant of the Himalayas and high Chinese mountains) in Meghalaya, a relatively warm area is intriguing. The Bengal Tiger *Panthera tigris*, Marbled Cat *Pardofelis marmorata*, Jungle Cat *Felis chaus*, Sambar *Cervus unicolor*, and the Wild Pig *Sus scrofa* also roam these forests. The Slow Loris *Nycticebus bengalensis*, Capped Langur *Trachypithecus pileatus* and other macaques are also seen here (Choudhury 2010).

Kunte *et al.* (2011) conducted surveys for butterflies during 2008 to 2010 in the Garo Hills. They surveyed

CRITICALLY ENDANGERED

White-rumped Vulture	<i>Gyps bengalensis</i>
Slender-billed Vulture	<i>Gyps tenuirostris</i>

ENDANGERED

Yellow-breasted Bunting	<i>Emberiza aureola</i>
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VULNERABLE

Lesser Adjutant	<i>Leptoptilos javanicus</i>
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NEAR THREATENED

Oriental Darter	<i>Anhinga melanogaster</i>
River Lapwing	<i>Vanellus duvaucelii</i>
Lesser Fish-eagle	<i>Ichthyophaga humilis</i>
Great Pied Hornbill	<i>Buceros bicornis</i>
Red-breasted Parakeet	<i>Psittacula alexandri</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYA

Grey Sibia	<i>Heterophasia gracilis</i>
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BIOME 7: SINO-HIMALAYAN TEMPERATE FOREST

Large-billed Leaf-warbler	<i>Phylloscopus magnirostris</i>
Chestnut-crowned Bush-warbler	<i>Cettia major</i>
Rufous-gorgeted Flycatcher	<i>Ficedula strophiate</i>
Rufous-bellied Niltava	<i>Niltava sundara</i>
Fire-tailed Sunbird	<i>Aethopyga ignicauda</i>
Rufous Sibia	<i>Heterophasia capistrata</i>
Nepal House-martin	<i>Delichon nipalense</i>

BIOME-8: SINO-HIMALAYAN SUBTROPICAL FOREST

Rosy Minivet	<i>Pericrocotus roseus</i>
Short-billed Minivet	<i>Pericrocotus brevirostris</i>
Blue-throated Barbet	<i>Megalaima asiatica</i>
Slaty-backed Forktail	<i>Enicurus schistaceus</i>
Bay Woodpecker	<i>Blythipicus pyrrhotis</i>
Maroon Oriole	<i>Oriolus traillii</i>
Grey Treepie	<i>Dendrocitta formosae</i>
Black-winged Cuckooshrike	<i>Coracina melaschistos</i>
Short-billed Minivet	<i>Pericrocotus brevirostris</i>
Orange-bellied Leafbird	<i>Chloropsis hardwickii</i>
Flavescent Bulbul	<i>Pycnonotus flavesceus</i>
White-throated Bulbul	<i>Alophoixus flaveolus</i>
Rufous-backed Sibia	<i>Heterophasia annectens</i>
Nepal Fulvetta	<i>Alcippe nipalensis</i>
Striated Yuhina	<i>Yuhina castaniceps</i>
Blue-winged Minla	<i>Minla cyanouroptera</i>
Streaked Spiderhunter	<i>Arachnothera magna</i>
Black-throated Sunbird	<i>Aethopyga saturata</i>

BIOME-9: INDO-CHINESE TROPICAL MOIST FOREST

Grey Peacock-pheasant	<i>Polyplectron bicalcaratum</i>
Lesser Necklaced Laughingthrush	<i>Leucodioptron monileger</i>
Greater Necklaced Laughingthrush	<i>Garrulax pectoralis</i>
Rufous-necked Laughingthrush	<i>Dryonastes ruficollis</i>
Olive Bulbul	<i>Iole virescens</i>

butterflies in Balpakram National Park, Baghmara Reserve Forest and Siju Wildlife Sanctuary in southern Garo Hills, and Nokrek National Park in Western Garo Hills. They found 298 butterfly species, eight of which are legally protected under Schedule I (*Lycaenidae*: *Allotinus drumila drumila*, *Chliaria othona othona* and *Nymphalidae*:

Charaxes moori sandakanus, *Elymnias peali*, *Euthalia telchinia*, *Hypolimnas misippus*, *Prothoe franck regalis*, and *Symbrenthia silana*) and 33 under Schedule II of the Indian Wildlife (Protection) Act, 1972. They have suggested that the total species richness could be closer to 600–650 species. They reported significant range extensions of two Schedule I species: Peal's Palmfly *Elymnias peali* and *Prothoe franck regalis*, from the Garo Hills. These findings underscore the significance of the Garo Hills for butterfly conservation in India.

Sondhi *et al.* (2013) have reported occurrence of 320 species of butterflies in Garo Hills in surveys conducted between 2008 and 2011. Sharma and Sharma (2011) reported the occurrence of 70 species of Rotifera belonging to 24 genera and 15 families in Nokrek Biosphere Reserve. Out of these, eight species are new records from the state of Meghalaya.

The mother germoplasm of *Citrus indica* (locally known as *Memang Narang*) have been discovered by science researchers within Nokrek Range. It is considered to be the most primitive citrus fruit to date. *Citrus indica* is believed to be the originator of all other Citrus species that grows as wild species in Garo Hills. It is a typical dwarf Citrus which bears comparatively small fruits. It has variety of local uses and has significance in taxonomy, hybridisation and evolution. This is also important for germplasm conservation biology, besides tourist interest (Dang *et al.* 2012). This discovery led to the establishment of the National Citrus Gene Sanctuary-cum-Biosphere Reserve covering an area of 47 sq km.

LAND USE

- Nature conservation
- Forestry

THREATS AND CONSERVATION ISSUES

- Livestock grazing
- Disturbance to birds
- Firewood collection
- Fire
- Shifting cultivation
- Unsustainable exploitation of timber and Non Timber Forest Produce
- Coal mining

Nokrek NP is an important refuge for a variety of threatened mammals and herds of migratory elephants.

The State Government is in the process of acquiring Akhing tribal land. Social forestry schemes are being developed for the benefit of the tribals.

Choudhury (2010) have observed that this area has tremendous potential for eco-tourism and like "Garo Hut" some infrastructure is already coming up. Community participation in conservation should be encouraged and massive awareness campaign should be carried out. Nokrek should be expanded to cover some more areas of the fringe

as this may be the last large greenery in the westernmost part of Meghalaya. The importance of the area as a watershed should also be highlighted as most of the major rivers of Garo Hills including the Simsang or Someswari, the main river Balpakram-Siju have their source in Nokrek-Tura ridge.

The expansion of tea plantations in the foothills could be a boon as well as bane in the future unless properly regulated. It will provide an alternative to *jhum* cultivation, but if forest areas are destroyed for tea, then it will be detrimental (Choudhury 2010). *Jhum* has been reduced in recent years, but conversion of biodiversity-rich patches of natural vegetation to

monoculture plantations of rubber and arecanut are major destructors. *Jhum* or shifting cultivation is the primary agricultural practice in this hill range. Owing to human population pressure, the periodicity of *jhumming* has decreased to three to five years, not leaving much time for regeneration of the vegetation. It has been found that repeated *jhumming* increases the silt load. Vegetation on the lower slopes of the Tura Ridge has been heavily disturbed due to shifting cultivation.

Hunting is still a major problem. Teenagers are often seen with catapults, killing small birds. Timber smuggling is also on the increase. The park does not have sufficient staff to patrol the forest.

Coal mining is a common practice all over the Garo Hills, and this affects Nokrek (mainly the Biosphere Reserve), especially the southern range. Both open cast and traditional 'rat hole' mining were observed.

Inclusion of Tura Peak Reserve Forest in the Protected Area Network would greatly help to save the primary forest of the hills. It is also recommended that the area of the Biosphere Reserve be increased to link Nokrek with Balpakram National Park (an IBA), and Baghmara Reserve Forest.

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Nokrek ridge is not only an important wildlife habitat but also the source of water to the growing township of Tura

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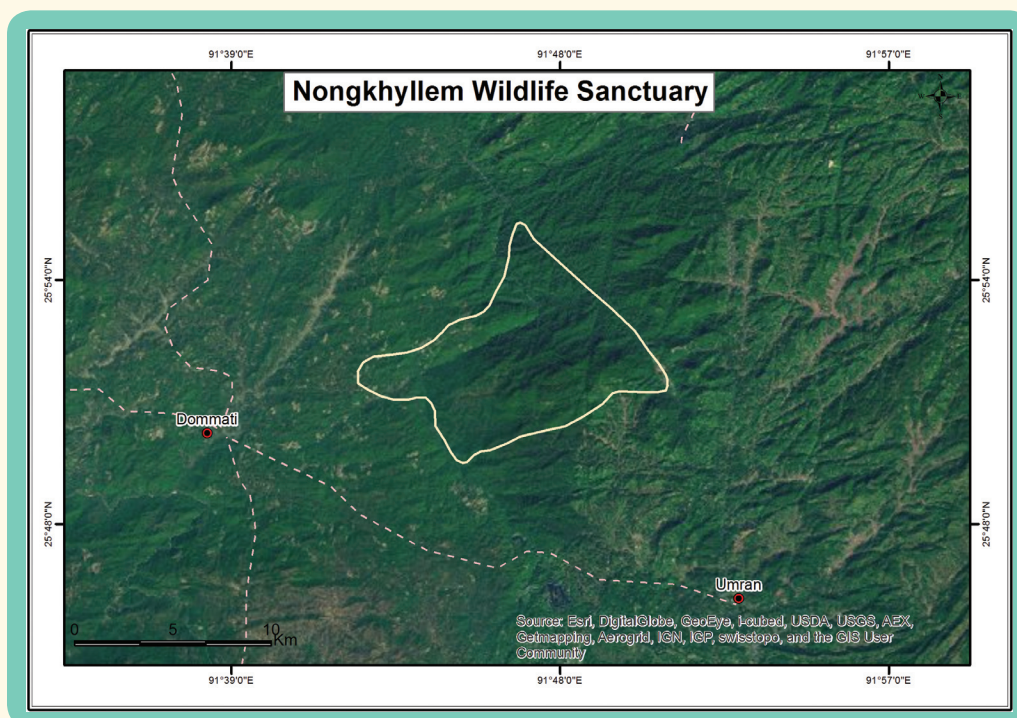
NONGKHYLLEM WILDLIFE SANCTUARY

IN-ML-04

IBA Site Code	: IN-ML-04	Altitude	: 200–950 msl
State	: Meghalaya	Rainfall	: 2,000–3,000 mm
District	: Ri-Bhoi	Temperature	: 6 °C to 32 °C
Coordinates	: 25° 51' 46" N, 91° 50' 23" E	Biogeographic Zone	: Northeast
Ownership	: State	Habitats	: Tropical Moist Deciduous Forest, Tropical Semi Evergreen Forest and Montane Grassy land
Area	: 14,900 ha		

IBA CRITERIA: A1 (Threatened species).

PROTECTION STATUS: Wildlife Sanctuary, established in March 1981.



GENERAL DESCRIPTION

This site includes Nongkhylllem Wildlife Sanctuary (2,900 ha), Nongkhylllem Reserve Forest (9,691 ha) and a portion of community forest west of the Umtrew river that is being acquired by the State Government (2,300 ha). This area is among the last large tracts of wilderness left in Meghalaya. It is located in the Ri-Bhoi district of Meghalaya. Earlier Ri-Bhoi was a sub-division of East Khasi Hills district.

The area consists of undulating plains to low hills, which are part of the Archaean Meghalaya Plateau. The area has become disjunct and rugged, especially towards west and north, because of continuous erosion by the rivers Umtrew, Umran, Umling, Umtasor and other smaller streams. The lowest parts of the sanctuary are about 200 m above msl near Lailad, while the highest are 950 m above msl in the eastern and southern areas.

The Umtrew is the main river of the area and Umran, Umling and Umtasor are its tributaries. The Umtrew also marks the western boundary of the reserve forest and the sanctuary. There is a natural lake called Birbah in the southern part of the sanctuary with an area of about 15 ha, of which open area is less than 5 ha, the rest being covered with grass and reeds. The elevation of the lake is about 580 m. There are two other small artificial lakes (reservoirs) near Birbah, and two large reservoirs just outside the reserve forests where a good number of wintering and passage migrants are seen (Choudhury 2002).

The area has a tropical monsoon climate. The summers are hot and wet while the winters are cool and dry. The average annual rainfall is about 2,500 mm. The area is in the relatively low rainfall zone.

The major part of the habitat is Tropical Moist Deciduous

Forest with patches of Tropical Semi-evergreen Forest, especially in the river valleys and streams. The deciduous forests can be classified as 'Khasi Hill sal' and 'Kamrup sal' (Champion and Seth 1968). The Sal *Shorea robusta* dominates the vegetation in the entire southern area. Elsewhere, the top forest canopy consists of *Tetrameles nudiflora*, *Pterospermum acerifolium*, *Amoora wallichii*, *Artocarpus chaplasha*, *Michelia champaca*, *Mesua ferrea* and others species.

Abandoned *jhums* (slash-and-burn shifting cultivation of hill tribes) are covered with various grasses and shrubs. Large stretches of Bamboos, especially *Oxytenanthera nigrociliata* and *Dendrocalamus hamiltonii* are found mainly in old *jhum* areas. Plantations of the Forest Department are mostly covered with Sal *Shorea robusta* and Teak *Tectona grandis*.

Small, scattered patches of grassland occur in different areas of the sanctuary, mainly in the depressions. These bear *Alpinia allughas* herb and *Arundo donax* and *Neyraudia reynaudiana* grasses (Choudhury 1998).

AVIFAUNA

More than 400 bird species were recorded from Nongkhylllem Wildlife Sanctuary, Reserve Forest and adjacent areas including Umiam Lake (a separate IBA) (Choudhury 1998). In the Nongkhylllem site alone, the species diversity would be more than 300.

The Swamp Francolin *Francolinus gularis*, which apparently was found earlier in this area, has disappeared mainly due to destruction of its grassy habitat. In the past, it used to occur in the wet grasslands of Nongpoh Valley and the valleys of the Umran Rivers near Nunmati area (Choudhury 1998).

Although Nongkhylllem is well within the distribution

range of the Manipur Bush-quail *Perdicula manipurensis*, Choudhury (1998) could not find any evidence of its presence. The Near Threatened White-cheeked Hill-partridge *Arborophila atrogularis* was once not uncommon but it has apparently declined due to extensive trapping. However, Kaleej Pheasant *Lophura leucomelanos*, Red Junglefowl *Gallus gallus* and Grey Peacock-pheasant *Polyplectron bicalcaratum* are still relatively common, despite trapping and shooting.

Dohling and Sathyakumar (2011) studied the relative abundance of galliformes in this IBA during March to May, 2009. The Red Junglefowl *Gallus gallus* was the most encountered (n=9, 15 individuals), followed by Kalij Pheasant *Lophura leucomelanos* (n=5, 9 individuals), and Mountain Bamboo Partridge *Bambusicola fytchii* (n=1, 1 individual). Grey Peacock-pheasant *Polyplectron bicalcaratum* was confirmed based on call heard on one occasion.

According to Choudhury (1998), this site is a potential habitat for the globally Threatened Wood Snipe *Gallinago nemoricola*, although none were sighted during his surveys.

The forests of Nongkhylllem have 14 species of green pigeons and doves, 16 species of woodpeckers and piculets, six species of barbets, 11 species of bulbuls, and four species of hornbills (Choudhury 1998). The globally Threatened Rufous-necked Hornbill *Aceros nipalensis* is very rare and was not seen by Choudhury (1998) during his surveys. However, there is a specimen record from Khasi Hills (Baker 1907). Another species that has apparently disappeared is the Near Threatened Brown Hornbill *Anorrhinus tickelli*. The extant species of hornbills are Wreathed *Aceros undulatus*, Oriental Pied *Anthracoceros albirostris* and Great Pied *Buceros bicornis*.

The Finch-billed Bulbul *Pycnonotus canifrons*, now called Crested Finchbill, a bird found between 1,400 m to 2,500 m, but descending in winter to 900 m (Ali and Ripley 1987) was collected by Hume (1888) from the neighbourhood of Shillong and nearby areas. Choudhury (1998) could not find any specimen in Nongkhylllem but writes that it 'may be found in the higher areas such as Umiam (Barapani), towards south of Nongkhylllem'.

As the area lies below 1,000 m, it falls in Biome 9 (Indo-Chinese Tropical Moist Forest). BirdLife International (undated) has listed 19 species in this biome, out of which eight species have been found in this IBA by Choudhury (1998): White-cheeked Hill-partridge *Arborophila atrogularis*, Grey Peacock-pheasant *Polyplectron bicalcaratum*, Pale-headed Woodpecker *Gecinulus grantia*, Black-backed Forktail *Enicurus immaculatus*, Lesser Necklaced Laughingthrush *Leucodioptron monileger*, Greater Necklaced Laughingthrush *Garrulax pectoralis*, Rufous-necked Laughingthrush *Dryonastes ruficollis* and Sultan Tit *Melanochlora sultanea*. During winter, many species of Biome 7 (Sino- Himalayan

CRITICALLY ENDANGERED

White-rumped Vulture (old records)	<i>Gyps bengalensis</i>
Slender-billed Vulture (old records)	<i>Gyps tenuirostris</i>
Red-headed Vulture	<i>Aegypius calvus</i>

ENDANGERED

Greater Adjutant	<i>Leptoptilos dubius</i>
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VULNERABLE

Rufous-necked Hornbill?	<i>Aceros nipalensis</i>
Wood Snipe?	<i>Gallinago nemoricola</i>

NEAR THREATENED

Oriental Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Lesser Fish-Eagle	<i>Ichthyophaga humilis</i>
White-cheeked Hill-partridge	<i>Arborophila atrogularis</i>
Blyth's Kingfisher	<i>Alcedo hercules</i>
Great Pied Hornbill	<i>Buceros bicornis</i>
Brown Hornbill (?)	<i>Anorrhinus tickelli</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Grey Sibia	<i>Heterophasia gracilis</i>
White-naped Yuhina	<i>Yuhina bakeri</i>

Temperate Forest) and Biome 8 (Sino-Himalayan Subtropical Forest) descend to this site. The noteworthy species are Sapphire Flycatcher *Ficedula sapphira*, Rufous-bellied Niltava *Niltava sundara*, Bay Woodpecker *Blythipicus pyrrhotis*, Rosy Minivet *Pericrocotus roseus*, Short-billed Minivet *Pericrocotus brevirostris*, Striated Bulbul *Pycnonotus striatus*, White-throated Bulbul *Alophoixus flaveolus*, Slaty-backed Forktail *Enicurus schistaceus*, Orange-bellied Leafbird *Chloropsis hardwickii*, Slatybellied Tesia *Tesia olivea*, Streaked Spiderhunter *Arachnothera magna* and Maroon Oriole *Oriolus trailii*.

This site is selected as an IBA on the basis of the presence of globally Threatened species (A1 criteria).

OTHER KEY FAUNA

The area is rich in other wildlife with a high density of large mammals, especially in the northern areas. A sizeable population of wild Asian Elephants *Elephas maximus* occurs in the sanctuary, reserve forest and adjacent areas (Choudhury 1999). Other notable animals are: Tiger *Panthera tigris*, Leopard *P. pardus*, Clouded Leopard *Neofelis nebulosa*, Leopard Cat *Prionailurus bengalensis*, Jungle Cat *Felis chaus*, Fishing Cat *Prionailurus viverrinus*, Wild Dog or Dhole *Cuon alpinus*, Asiatic Black Bear *Ursus thibetanus*, Sloth Bear *Merursus ursinus*, Hoolock Gibbon *Hoolock hoolock*, Slow Loris *Nycticebus bengalensis*, Capped Langur *Trachypithecus pileatus*, Rhesus Macaque *Macaca mulatta*, Sambar *Rusa unicolor*, Indian Muntjac or Barking Deer *Muntiacus muntjak*, Gaur *Bos gaurus*, Binturong *Arctictis binturong*, and Malayan Giant Squirrel *Ratufa bicolor*. Ten years ago, pugmarks confirmed presence of Tiger (Choudhury 2003) but we do not have latest information.

Among reptiles, Asian Leaf Turtle *Cyclemys dentata*, Common Monitor Lizard *Varanus bengalensis*, and Water Monitor Lizard *V. salvator* were recorded in the area. The snakes, Indian Rock Python *Python molurus*, King Cobra *Ophiophagus hannah*, Banded Krait *Bungarus fasciatus*, Common Krait *B. caeruleus*, Buff-striped Keelback *Amphiesma stolatum* and Vipers such as Green or Bamboo Pit Viper *Trimeresurus gramineus* have been recorded (Choudhury 1998).

LAND USE

- Power generation
- Forest
- Wetland and grassland

THREATS AND CONSERVATION ISSUES

- Poaching
- Encroachment (settlement and agriculture)
- Illegal felling of trees
- *Jhum* cultivation
- Forest fires.

The Nongkhylllem Wildlife Sanctuary has a relatively small area (only 29 sq. km) but is rich in biodiversity. Already the Forest Department is taking steps to acquire 23 sq. km to the west of the Untrew river. This, along with the reserve forest (96 sq. km) will make it a viable conservation unit for long-term protection. A hydroelectric power project was set up close by, but, fortunately, no submergence of forest land was necessary. The eastern boundary of the reserve forest touches the National Highway-40 that connects Shillong and Guwahati.

According to Dohling and Sathyakumar (2011) poaching and forest fires are serious threats to galliformes during the breeding season.

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NORPUH WILDLIFE SANCTUARY AND RESERVE FOREST

IBA Site Code : IN-ML-05

State : Meghalaya

District : Jaintia Hills

Coordinates : 25° 08' 60" N, 92° 27' 30" E

Ownership : State

Area : 16,110 ha

Altitude : 100–1,000 msl

Rainfall : 4,000-6,000 mm

Temperature : 5 °C to 35 °C

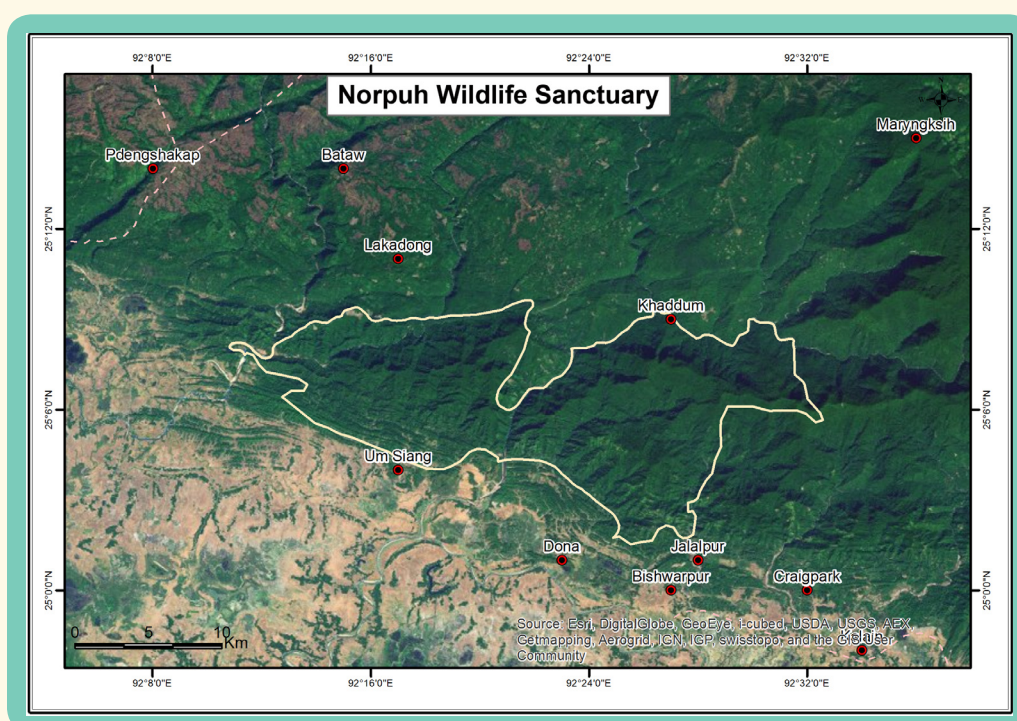
Biogeographic Zone : Northeast

Habitats : Tropical Wet Evergreen Forest
Tropical Semi-evergreen Forest

IN-ML-05

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Block II has been declared as a Wildlife Sanctuary in 2014.



GENERAL DESCRIPTION

The site includes two reserve forests, Norpuh Blocks I and II, in the southern part of Jaintia Hills district. The area has some of the finest primary forests remaining in Meghalaya. Block I, established in June 1909, lies west of the Lubha, the main river of the area, while Block II, established in March 1918, is to the east of the river. Both are near the India-Bangladesh international boundary. Block II is also contiguous with Barail IBA site of Assam. The terrain is rugged, with steep slopes, deep gorges and narrow valleys. Other major rivers are the Prang (Hari) and Apha. Although these forests are on National Highway-44, and can be reached easily, accessibility to the interior areas is very difficult because of the extremely rugged terrain and steep slopes and lack of roads to the interior.

The climate of Norpuh (also spelled as Narpuh) forests is tropical monsoon type, with a hot and wet summer and a cool

and dry winter. The area often receives very heavy rainfall, may be more than 6,000 mm, from the southwest monsoon.

The lower warmer areas are characterized by the Cachar Tropical Evergreen Forest, and the higher cooler areas by the Khasi Subtropical Hill Forest (Champion and Seth 1968). There are grassy areas in the forest openings and in abandoned *jhums*.

Jaintia Hills District has a high biodiversity of wildlife: more than 400 species of birds, at least 120 species of mammals including 37 species of bats, 30 species of carnivores, seven species of ungulates and 30 species of rodents. Most of these are found in the pristine habitat of Narpuh Reserved Forest Block I & II.

AVIFAUNA

More than 140 species of birds have been recorded at this site (Lahkar 2002). Two globally Threatened species,

Rufous-necked Hornbill *Aceros nipalensis* and Tawny-breasted Wren-babbler *Spelaeornis longicaudatus* are found here, perhaps in significant numbers. The Tawny-breasted Wren-babbler, an endemic bird of Eastern Himalayas, has a very small known range in Meghalaya, Assam and Manipur (Ali and Ripley 1987, BirdLife International 2001).

The site lies in Eastern Himalayas Endemic Bird Area (EBA 130). According to Stattersfield *et al.* (1998), 21 species can be considered as restricted range in this EBA. From the available literature (Lahkar 2002), four are found here. Perhaps some more are yet to be identified.

This site lies in Biome 9 (Indo-Chinese Tropical Moist Forest). In this biome, BirdLife International (undated) has listed 19 species that represent the typical bird assemblage. The following four species of this biome have been seen by Lahkar (2002): White-cheeked Partridge *Arborophila atrogularis*, Grey Peacock-pheasant *Polyplectron bicalcaratum*, Black-backed Forktail *Enicurus immaculatus* and Sultan Tit *Melanochlora sultanea*.

As the site has relatively intact Tropical Evergreen Forest in lower warmer areas and Sub-tropical Evergreen Forest in cooler higher areas, many species of Biome 7 and Biome 8 are found here in winter. Some interesting species of these biomes are: Mountain Bamboo-partridge *Bambusicola fytchii*, Grey-headed Parakeet *Psittacula finschii*, Blue-throated Barbet *Megalaima asiatica*, Bay Woodpecker *Blythipicus pyrrhotis*, Blyth's Kingfisher *Alcedo hercules*, Black-winged Cuckooshrike *Lalage melaschistos*, Short-billed Minivet *Pericrocotus brevirostris*, White-throated Bulbul *Alophoixus flaveolus*, Orange-bellied Leafbird *Chloropsis hardwickii*, Slaty-backed Forktail *Enicurus schistaceus*, Nepal Fulvetta *Alcippe nipalensis*, Small Niltava *Niltava macgrigoriae*, Streaked Spiderhunter *Arachnothera magna*, Maroon Oriole *Oriolus traillii*, Grey Treepie *Dendrocitta formosae*, Rufous-bellied Niltava *Niltava sundara*, Lesser Necklaced Laughingthrush *Leucodioptron monileger*, Greater Necklaced Laughingthrush *Garrulax pectoralis* and Pin-striped Tit-babbler *Mixornis gularis*.

This site is selected as an IBA as it has globally Threatened species (A1 criteria) and restricted range species (A2 criteria).

VULNERABLE

Rufous-necked Hornbill	<i>Aceros nipalensis</i>
Tawny-breasted Wren-babbler	<i>Spelaeornis longicaudatus</i>

NEAR THREATENED

White-cheeked Partridge	<i>Arborophila atrogularis</i>
Great Pied Hornbill	<i>Buceros bicornis</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Tawny-breasted Wren-babbler	<i>Spelaeornis longicaudatus</i>
Grey Sibia	<i>Heterophasia gracilis</i>
White-naped Yuhina	<i>Yuhina bakeri</i>
Yellow-vented Leaf-warbler	<i>Phylloscopus cantator</i>

OTHER KEY FAUNA

The site is rich in primates with seven species, namely Bengal Slow Loris *Nycticebus bengalensis*, Stump-tailed macaque *Macaca arctoides*, Pig-tailed Macaque *M. leonina*, Rhesus Macaque *M. mulatta*, Assamese Macaque *M. assamensis*, Capped Langur *Trachypithecus pileata*, and Hoolock Gibbon *Hoolock hoolock* (Choudhury 1998). The presence of endangered mammals such as the Tiger *Panthera tigris*, Leopard *P. pardus*, Clouded Leopard *Neofelis nebulosa*, Yellow-throated Marten *Martes flavigula*, Dhole or Wild Dog *Cuon alpinus*, Asian Golden Cat *Catopuma temminckii*, Chinese Pangolin *Manis pentadactyla*, Asian Elephant *Elephas maximus*, Himalayan Serow *Capricornis thar* and Asiatic Brush-tailed Porcupine *Atherurus macrourus* shows the importance of this IBA. Other notable mammals include the Asiatic Black Bear *Ursus thibetanus*, Large Indian Civet *Viverra zibetha*, Small Indian Civet *Viverricula indica*, Himalayan Palm Civet *Paguma larvata*, Binturong *Arctictis binturong*, Leopard Cat *Prionailurus bengalensis* and Jungle Cat *Felis Chaus*. The ungulates present are Sambar *Rusa unicolor*, Barking Deer or Muntjak *Muntiacus muntjak* and Gaur *Bos gaurus* (Choudhury 1999). The number of tigers was estimated at eight individuals in the entire Saipung and Narpuh Reserve Forest areas and Lakadong area of Meghalaya in 2008 (Anon. undated).

LAND USE

- Forest
- Agriculture
- Cash crop (Areca nut)

THREATS AND CONSERVATION ISSUES

- Rat-hole coal mining
- Encroachment (settlement and agriculture)
- Hunting, poaching
- *Jhum* cultivation
- Illegal felling of trees
- Speeding vehicles
- Pollution from motor vehicles

The unregulated and unscientific rat-hole coal mining is a big issue in Jaintia Hills. Along Jowai road in Jaintia Hills alone, 5.78 million tonnes of coal produced by Meghalaya is lying in heaps. The wooden crates sitting on each coal pile serve as the local unit of measurement. Traders buy coal not in kilos but by the number of wooden crates it fills. Local buying and selling of coal is common in Jaintia hills, a notified Sixth Schedule area governed by autonomous elected councils. These councils have the power to make laws to divert land other than reserve forests for non-agricultural purposes expected to promote the interests of the inhabitants (Down to Earth 2015 <http://www.downtoearth.org.in/node/1416>).

Pipes are used to pump out groundwater encountered while mining for coal. The pH values of both surface and

groundwater tested in the region were in the range of 3 to 3.7, indicating that the run off from the mines is eventually seeping into water bodies. The mining business in this region is people-owned; it is unregulated and thereby run unscientifically (Down to Earth 2015)

This site, and to some extent Saipung Reserve Forest, are the only areas of some significance in Jaintia Hills where primary forest is still found. There is some primary forest outside the reserve forests also. The National Highway-44 that connects southern Assam, Mizoram and Tripura with the rest of the country is busy and has made the area accessible. In the process, however, a number of animals are crushed to death by speeding vehicles, and increased accessibility has resulted in encroachment and felling of trees in some areas.

The Narpuh forest Blocks I and II and some contiguous forests outside should be brought under the protected area network. The proposal for a sanctuary is pending for many years (Choudhury 1999). Poaching is still a major problem for hornbills, pheasants and other larger birds and mammals.

Earlier, some forest areas of Narpuh and nearby areas were destroyed mainly due to betelnut plantation, for *jhum* cultivation, orchards (mainly oranges) and firewood collection.

Here is a summary of the threats as explained in a document (Anon. undated):

- (i) People living in the fringes of the Reserved Forest are poor and literally backward. Conservation issues and programmes can be implemented in these areas along side developmental activities for their upliftment through Economic Development works.
- (ii) Elephant depredation to crops and properties and sometimes injury to humans is a common issue.
- (iii) The people of the area are still practicing community hunting, religious sacrifice of wild animals and hunting for games and sports. This has led to poaching of small animals and even poisoning of rivers and streams.
- (iv) Shifting cultivation and practicing of unscientific agricultural practices is still prevalent. This has led to the fragmentation and destruction of wildlife habitat in the area. The people should be convinced to abandon this age-old practice.
- (v) Rural populations are mostly unaware of wildlife conservation and legal implication which requires

extensive and intensive initiation of awareness programmes and strategies which are being carried out every year through awareness programmes.

- (vi) Majority of the land belongs to either private individuals or community and thus creates a great hurdle in conservation measures.
- (vii) The other threats are unregulated and open cast coal and limestone quarries and mining operations. Most of the rivers have become polluted to the extent that the aquatic species have disappeared from the river eco-system. These effects have been detected since the early 1992.

KEY CONTRIBUTORS

Kulojyoti Lahkar, Anwaruddin Choudhury

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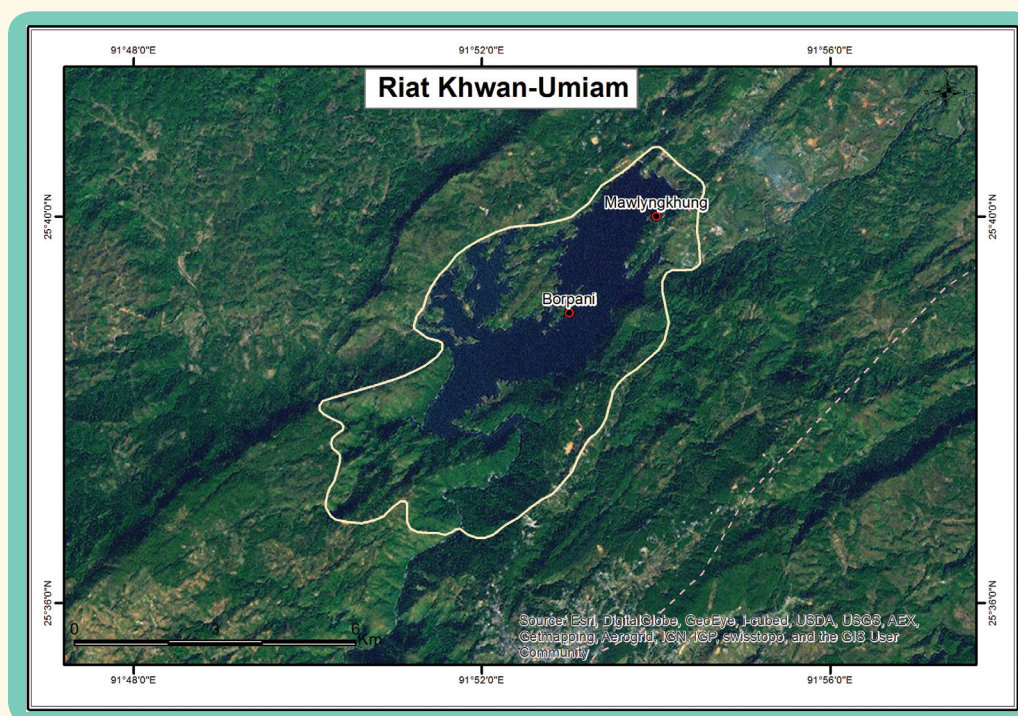
RIAT KHWAN - UMIAM

IN-ML-06

IBA Site Code	: IN-ML-06	Rainfall	: >2,000 mm
State	: Meghalaya	Temperature	: 3 °C to 30 °C
District	: East Khasi Hills and Ri-Bhoi	Biogeographic Zone	: Northeast
Coordinates	: 25° 37' 00" N, 91° 49' 00" E	Habitats	: Sub-tropical Pine Forest, Sub-tropical Broadleaf Hill Forest, Reservoir
Ownership	: State		
Area	: >1,500 ha		
Altitude	: 900–1,400 msl		

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected



GENERAL DESCRIPTION

This site includes Riat Khwan Reserve Forest, Umiam Lake and the forests near the old Guwahati-Shillong road in the Khasi Hills of Meghalaya. The area spreads across two districts, East Khasi Hills and Ri-Bhoi. The terrain of Riat Khwan is hilly and steep, and forms a part of the catchment area of the River Umiam. Barapani, as the Umiam reservoir was and still is popularly known, is a large artificial reservoir of c. 1,000 ha. It is about 16 km from Shillong, the State capital. It was created for the generation of hydroelectric power in the 1960s. This is the second largest reservoir in northeast India after Gumti in Tripura (Choudhury 2002). The area is an important tourist destination and thousands of visitors come to the site every winter. Many of the visitors are picnickers. Since Umiam is located on the busy National Highway 40 that connects two state capitals, Guwahati and

Shillong, accessibility is excellent and its importance as a tourist centre is increasing.

The area has a sub-tropical climate. Usually, summer is hot and humid and winter is cool and dry. The site lies in a rain shadow area; so the rainfall is comparatively low.

In the Riat Khwan-Umiam area, two forest types are seen, namely Pine Forest (Assam Sub-tropical Pine Forest) and Broadleaf Forest. Riat Khwan Reserve Forest is mostly Broadleaf Forest, but the higher parts of the site are dominated by Khasi pine *Pinus kesiya* (Lahkar 2002). In the Lake, there is some emergent vegetation at the western edge.

AVIFAUNA

Umiam Lake is important for wintering waterfowl. Waterfowl censuses were carried out in the area sporadically throughout the 1990s, and more than 40 species of

waterbirds were recorded. The Black Stork *Ciconia nigra* and Ferruginous Duck *Aythya nyroca* (Near Threatened) were recorded during a waterfowl census in 1999. Four species of grebes, the Great Crested *Podiceps cristatus*, Black-necked *P. nigricollis*, Red-necked *P. grisegena* and Little Grebe *Tachybaptus ruficollis*, have been noted. Oriental Darter *Anhinga melanogaster* (Near Threatened), Gadwall *Anas strepera*, Eurasian Wigeon *A. penelope* and Northern Shoveler *A. clypeata* are other noteworthy waterfowl (Choudhury 1998). More than 70 other species of birds have been reported from the site (Lahkar 2002), and the surrounding forests, but many more are likely to occur.

The site lies in Biome 8 (Sino-Himalayan Sub-tropical Forest). In this biome, BirdLife International (undated) has listed 95 bird species, of which 16 species have been reported from here but more are likely to be present. They are the Golden-throated Barbet *Megalaima franklinii*, Blue-throated Barbet *M. asiatica*, Black-winged Cuckooshrike *Coracina melaschistos*, Rosy Minivet *Pericrocotus roseus*, Short-billed Minivet *P. brevirostris*, Striated Bulbul *Pycnonotus striatus*, Flavescent Bulbul *P. flavescentis*, Crested Finchbill *Spizixos canifrons*, Mountain Bulbul *Hypsipetes maclellandii*, Orange-bellied Leafbird *Chloropsis hardwickii*, Blue-winged Minla *Minla cyanouroptera*, Rufous-backed Sibia *Heterophasia annectens*, Small Niltava *Niltava macgrigoriae*, Yellow-cheeked Tit *Parus spilonotus*, Maroon Oriole *Oriolus traillii* and Grey Treepie *Dendrocitta formosae*.

This site is selected mainly based on A1 (Threatened species) and A3 (Biome-restricted assemblage) criteria. Two restricted range species have been identified which are common and not much of conservation concern. However, more are likely to be found as the forests are relatively in good condition.

OTHER KEY FAUNA

No particularly significant species occurs in this site, except for the occasional arrival of Indian Flying Foxes *Pteropus giganteus*. Bay Bamboo Rats *Cannomys badius* have also been reported. There were Indian Muntjac or Barking Deer *Muntiacus muntjak* in Riat Khwan but the current status is unknown. They may have been extirpated due to hunting.

VULNERABLE

Greater Spotted Eagle	<i>Clanga clanga</i>
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NEAR THREATENED

Oriental Darter	<i>Anhinga melanogaster</i>
Ferruginous Duck	<i>Aythya nyroca</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

White-naped Yuhina	<i>Yuhina bakeri</i>
Yellow-vented Warbler	<i>Phylloscopus cantator</i>

LAND USE

- Forest
- Power generation
- Tourism and recreation
- Landfill site

THREATS AND CONSERVATION ISSUES

- Encroachment
- Hunting and poaching
- Illegal felling
- Water pollution and siltation in Umiam
- Tree felling for landfill site

The Broadleaf Forest favoured by birds and other wildlife is slowly being reduced. The major issue of Umiam Lake is pollution from Shillong city, and siltation due to deforestation in the catchment area. The area should be declared as a bird sanctuary and steps should be initiated to check pollution from the city effluents and hold awareness programmes among different sections of the society.

As per a report published by Government of Meghalaya (Anon. 2013), there is an old landfill site which is part of Riat Khwan Reserve Forest. However, the Shillong Municipality has been officially granted lease since 1938 to use the land for solid waste disposal purposes. Based on detailed design for the entire 15000 sq m for sanitary landfill and associated works, 870 trees were cut for the construction of landfill site along with access road. The necessary approval from the Ministry of Environment, Forests and Climate Change (MoEF&CC) was obtained in November 2011. The report mentions that compensatory plantation will be done as per the conditions stipulated by the MoEF&CC.

KEY CONTRIBUTORS

Kulojyoti Lahkar, Anwaruddin Choudhury

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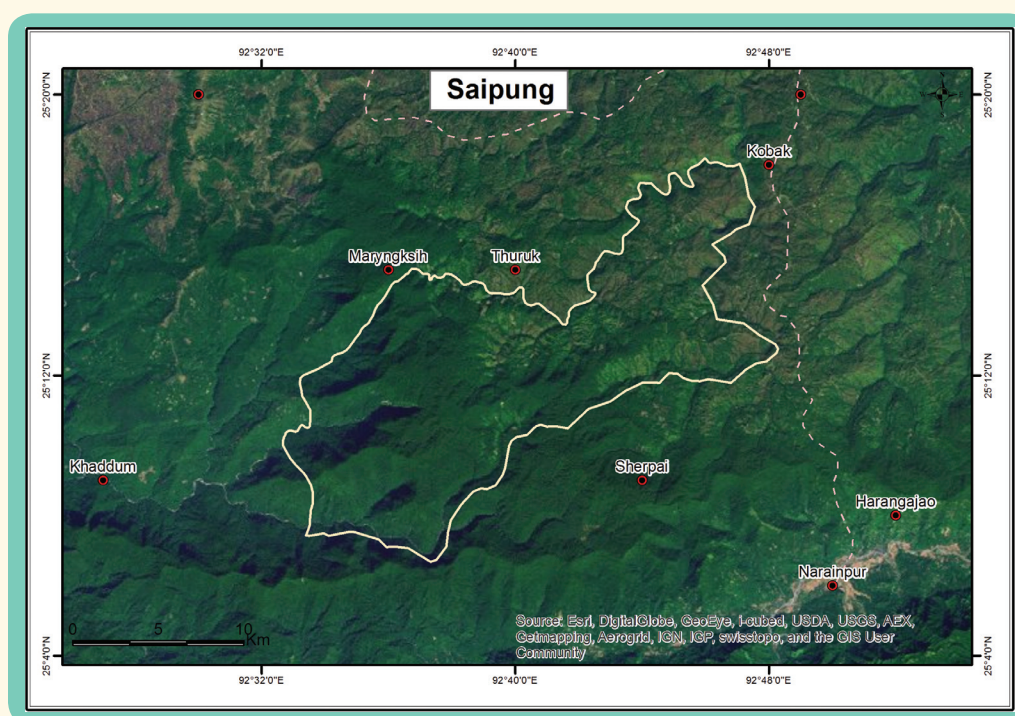
SAIPUNG RESERVE FOREST

IN-ML-07

IBA Site Code	: IN-ML-07	Rainfall	: 2,000–3,000 mm
State	: Meghalaya	Temperature	: 6 °C to 32 °C
District	: Jaintia Hills	Biogeographic Zone	: Northeast
Coordinates	: 25° 19' 60" N, 92° 45' 00" E	Habitats	: Tropical Dry Evergreen Forest, Tropical Semi Evergreen Forest, Tropical Moist Deciduous Forest
Ownership	: State		
Area	: >1,500 ha		
Altitude	: Not available		

IBA CRITERIA: A1 (Threatened species), Data Deficient

PROTECTION STATUS: Not officially protected



GENERAL DESCRIPTION

The IBA site includes Saipung Reserve Forest, the oldest notified reserve in the State of Meghalaya, having been gazetted in 1877! It is also the largest reserve forest in the State and is located near North Cachar Hills district in the neighbouring Assam State. Saipung is relatively inaccessible.

AVIFAUNA

The area is rich in wildlife but information is available only on primates and wild elephants (Choudhury 1999a, 1999b). Adequate data on birds is not available to properly assess the site as an IBA. Hence, it has been named as a Data Deficient site.

The Threatened species that are likely to occur include the White-winged Duck *Asarcornis scutulata*, Rufous-necked

Hornbill *Aceros nipalensis*, and Beautiful Nuthatch *Sitta formosa*.

THREATS AND CONSERVATION ISSUES

- Poaching
- Encroachment
- Felling of trees

The area is inhabited by the Biate tribe (belonging to Kuki-Chin group) and they have already encroached on a portion of the reserve forest. They are expert trappers and hunters, and hence poaching pressure is significant.

There was a proposal to declare Saipung Reserve Forest as a sanctuary along with Norpuh Block II Reserve Forest, and some community area was to be acquired as a link between these two reserve forests. Although the proposal did not materialize, the word “link” became associated with

the reserve forest, and it began to be referred to as Saipung Link Sanctuary, creating confusion.

KEY CONTRIBUTOR

Anwaruddin Choudhury

KEY REFERENCES

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Species such as the Wreathed Hornbill *Rhyticeros undulatus* still survives in good numbers in Saipung forest

ANWARUDDIN CHOUDHURY

IN-ML-07

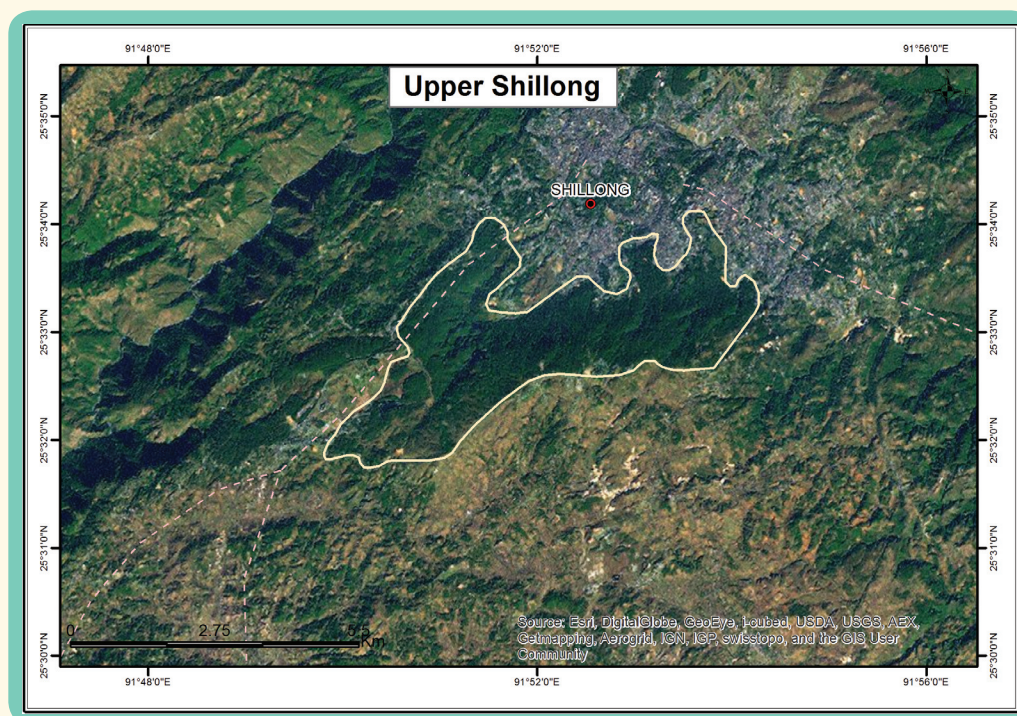
UPPER SHILLONG

IN-ML-08

IBA Site Code	: IN-ML-08	Altitude	: 1,800–1,961 msl
State	: Meghalaya	Rainfall	: 2,000 mm
District	: East Khasi Hills	Temperature	: 2 °C to 28 °C
Coordinates	: 25° 31' 60" N, 91° 49' 60" E	Biogeographic Zone	: Northeast
Ownership	: State	Habitats	: Tropical Pine Forest and Sub-Tropical Broadleaf Hill
Area	: 1,296 ha		

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected



GENERAL DESCRIPTION

The Upper Shillong Protected Forest and adjacent areas (Riat Laban Reserve Forest and Laitkor Protected Forest) are located very close to Shillong, the capital of Meghalaya, in East Khasi Hills district. These forests have a long history of protection and management, extending over more than a hundred years. In 1874, the Viceroy of India visited Shillong and directed the authorities to protect certain areas for timber production and for water conservation for Shillong city (Lyngwa 1997).

Tourists and picnickers visit the area especially for the panoramic view of Shillong city. The terrain is an undulating plateau, and contains some of the highest reaches of the Meghalaya plateau. There are two high peaks in the area, Laitkor and Shillong which give its name to the capital city of Meghalaya. The forest around Shillong peak is a traditional sacred grove and was studied by the celebrated British

botanist, Dr L. N.Bor in the twentieth century.

In Upper Shillong, Riat Laban and Laitkor, two main forests types, Sub-tropical Pine and Broadleaf, are seen. The Broadleaf occurs mainly along nullahs and in the eastern side of the Indian Air Force base. The pine forest has only Khasi Pine *Pinus kesiya*. In the Broadleaf, a few flowering trees such as *Rhododendron formosum*, *R. arborea* and *Pyrus pashia* still survive. A noteworthy tree species is the Oak *Quercus griffithii*. The fringe areas of the IBA are covered with short grass.

Due to its location very close to a large town and presence of the Air Force base, a lot of modification and degradation has taken place.

AVIFAUNA

A total of 82 bird species have been recorded so far (Lahkar 2002), but the number could be three times more.

Robson (2000) has heard the globally Threatened Tawny-breasted Wren-babbler *Spelaornis longicaudatus* near Shillong in mid-April. It appeared to be common, occurring in non-forest habitat (secondary growth, dense fern growth, etc.) as well as in the forest undergrowth. This little-known babbler qualifies as Vulnerable because it has a small, declining, severely fragmented population and range owing to clearance and degradation of moist evergreen forest (BirdLife International 2001).

Three restricted range birds of the Eastern Himalaya were found here but again, this is based on preliminary short surveys. This IBA site is very rich in avifauna and further surveys would record many more restricted range species.

Many species of Biome 7 (Sino-Himalayan Temperate Forest) and Biome 8 (Sino-Himalayan Sub-tropical Forest) are found here. A few are listed below: Blyth's Kingfisher *Alcedo hercules*, Golden-throated Barbet *Megalaima franklinii*, Black-winged Cuckooshrike *Coracina* (= *Lalage*) *melaschistos* (As per Rasmussen, there is a change in the bird's nomenclature to *Lalage melaschistos*), Rufous-bellied Bulbul *Hypsipetes mccllellandii* (there is change in nomenclature to *Ixos mccllellandii*), Himalayan Black Bulbul *Hypsipetes leucocephalus*, Golden Bush-robin *Tarsiger chrysaeus*, Aberrant Bush-warbler *Cettia flavolivacea*, Orange-barred Leaf-warbler *Phylloscopus pulcher*, Grey-faced Leaf-warbler *Phylloscopus maculipennis*, Orange-gorgeted Flycatcher *Ficedula strophliata*, Green-backed Tit *Parus monticolus*, Fire-tailed Sunbird *Aethopyga ignicauda*, Short-billed Minivet *Pericrocotus brevirostris*, Crested Finchbill *Spizixos canifrons* (= *Pycnonotus canifrons*), Grey-winged Blackbird *Turdus boulboul*, Oriental Magpie-robin *Copsychus saularis*, Red-billed Leiothrix *Leiothrix lutea*, Rusty-fronted Barwing *Actinodura egertoni*, Blue-winged Minla *Minla cyanouroptera* *Siva cyanouroptera*, Striated Yuhina *Yuhina castaniceps*, Grey-headed Flycatcher-warbler *Seicercus xantho-schistos*, Black-spotted Yellow Tit *Parus spilonotus*, and Streaked Spiderhunter *Arachnothera magna*.

Abidur Rahman (*pers. comm.* 2014) has recorded many species here since 2007: Amur Falcon *Falco amurensis*, Common Kestrel *Falco tinnunculus*, Besra Sparrowhawk *Accipiter virgatus*, Eurasian Sparrowhawk *Accipiter nisus*, Northern Goshawk *Accipiter gentilis*, Grey Sibia *Malacias gracilis*, Crested Finchbill *Pycnonotus canifrons*, Himalayan Black Bulbul *Hypsipetes leucocephalus*, Green-tailed Sunbird *Aethopyga nipalensis*, Assam Laughingthrush *Trochalopteron chrysopetrum*, Chestnut-crowned Laughingthrush *Garrulax erythrocephalus*, Streak-breasted Scimitar-babbler *Pomatorhinus ruficollis*, Rusty-capped Fulvetta *Schoeniparus dubius*, Grey-sided Bush-warbler *Oligura brunnifrons*, Grey-hooded Warbler *Phylloscopus xanthoschistos*, Grey-cheeked Warbler *Seicercus poliogenys*, Whistler's Warbler *Seicercus whistleri*,

Darjeeling Woodpecker (Darjeeling Pied Woodpecker) *Dendrocopos darjellensis*, Rufous-bellied Woodpecker (Rufous-bellied Pied Woodpecker) *Hypopicus hyperythrus*, Chestnut-bellied Nuthatch *Sitta cinnamoventris*, Velvet-fronted Nuthatch *Sitta frontalis*, Green-backed Tit *Parus monticolus*, Yellow-cheeked Tit *Parus spilonotus* and Eastern Jungle Crow *Corvus [macrorhynchos] levailantii*.

Other birds observed here are Rufous-breasted Accentor *Prunella strophliata*, Fire-capped Tit *Cephalopyrus flammiceps*, Buff-throated Warbler *Phylloscopus subaffinis*, Tickell's Leaf-warbler *Phylloscopus affinis*, Chestnut Bunting *Emberiza rutila* and Dark-breasted Rosefinch *Carpodacus nipalensis* (Robson 2001a, 2001b and 2007).

OTHER KEY FAUNA

Larger mammals have become extinct or a few that are surviving are very rare. So far the following species have been recorded: Indian Flying Fox *Pteropus giganteus*, Himalayan or Short-tailed Mole *Euroscaptor micrura*, Mole-shrew or Szechuan Burrowing Shrew *Anourosorex squamipes*, Savi's Pygmy Shrew *Suncus etruscus*, Grey Shrew *Crocidura attenuata*, Yellow-bellied Weasel *Mustela kathiah* and Barking Deer *Muntiacus muntjak*. There was also a record of the Clouded Leopard *Neofelis nebulosa* in the 1960s (A. Munim Mazumdar *in litt.* to A.U. Choudhury).

KEY FLORISTIC ELEMENTS

After critical scrutiny of herbarium collection present at BSI, ERC, Shillong (ASSAM) and recent survey some economically important plants were observed from the area such as *Panax assamicus*, *Gaultheria* sp., *Elaeagnus pyrifomis*, *Peristylus richardianus*, *Pleione praecox*, *Citrus latipes*, *Euonymus hamiltonianus*, *Gonocarpus micranthus*, *Paris polyphylla*. Apart from these, Upper Shillong, though a major part is pine forest, forms a wonderful habitat for orchid trees such as *Quercus* spp., *Castanopsis* sp. *Engelhardtia spicata*, *Citrus* sp., *Ficus* spp. which are preferred host for various epiphytic orchid species (Sachin Sharma *per. comm.* 2014).

LAND USE

- Forest
- Tourism and recreation
- Agriculture

THREATS AND CONSERVATION ISSUES

- Firewood collection
- General disturbance by trespassers
- Road development
- Encroachment

The site is adjacent to the growing township of Shillong, as a result of which biotic pressure is relatively high. This



A typical landscape of the tableland of Meghalaya plateau, which can be seen from Upper Shillong to Nongstoin in the west and Khiehriat in the east

VULNERABLE

Tawny-breasted Wren-Babbler *Spelaeornis longicaudatus*

NEAR THREATENED

Blyth's Kingfisher *Alcedo hercules*

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Tawny-breasted Wren-Babbler *Spelaeornis longicaudatus*
 Grey Sibia *Heterophasia gracilis*
 White-naped Yuhina *Yuhina bakeri*
 Black-browed Leaf-Warbler *Phylloscopus cantator*

includes firewood collection, use of trails from Upper and Madan Laban to Laitkor and Upper Shillong. Encroachment is a growing problem. Already a road has come up along the northern edge of Riat Laban and illegal settlements are coming up along the road, which will further increase the biotic pressure. However, the forests still survive to a great extent, and are of vital importance for the capital as water catchment areas. Hence, for better conservation, the site should be declared a protected area and the importance of the forest area as a source of water should be emphasized in environmental awareness programmes.

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CHERRAPUNJI: CLIFFS, GORGES AND SACRED GROVES

IBA Site Code : IN-ML-09

State : Meghalaya

District : East Khasi Hills

Coordinates : 25° 16' 16.109" N, -91° 44.380" E

Ownership : Community and State

Area : c.10,000 ha

Altitude : 1,350 m

Rainfall : 11,700 mm

Temperature : 4 °C to -30 °C

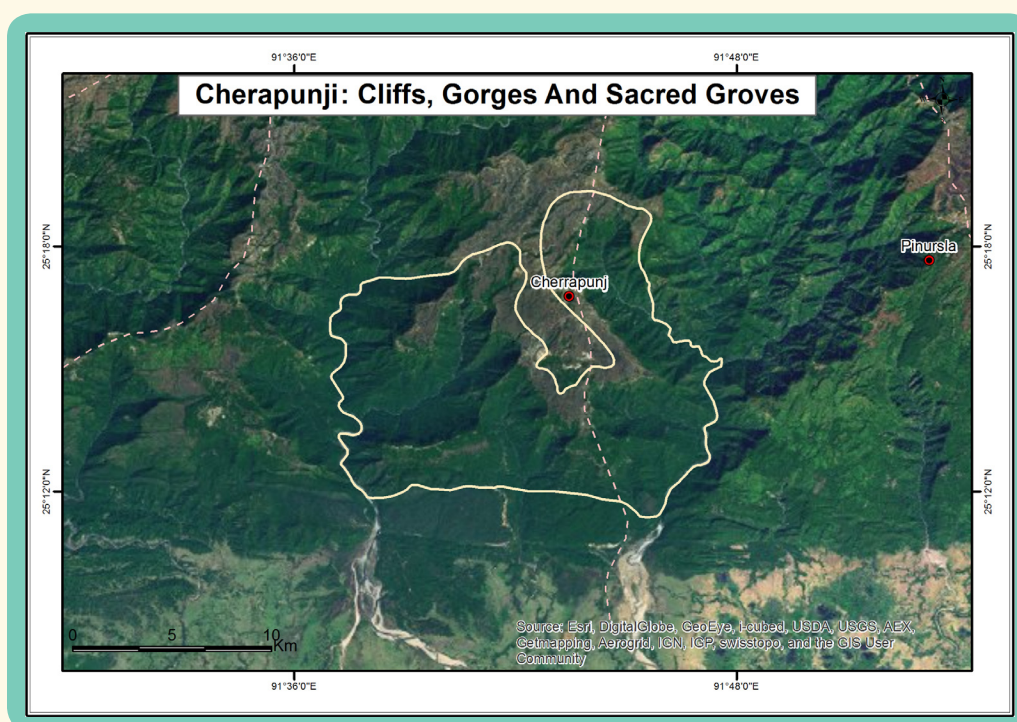
Biogeographic Zone : Northeast

Habitats : Evergreen Forest,
Broadleaf Montane Forest and
Plateau

IN-ML-09

IBA CRITERIA: A1 (Threatened species), A2 (Endemic Bird Area 130: Eastern Himalayas)

PROTECTION STATUS: Not officially protected



GENERAL DESCRIPTION

Cherrapunji, also known as “abode of cloud” and “Rain Capital of the World”, is one of the highest rainfall areas in the world (24,461 mm in 1860-61 and over 24,000 mm in 1974). In last few years, however, the rain seems to have become erratic and lesser than what it used to be. As per records of the Indian Meteorological Department, rainfall in the last few years was: 12,646 mm (2007), 11,414 mm (2008), 9069 mm (2009), 13,472 mm (2010), 8,732 mm (2011), 13,363 mm (2012) and 7560 mm (2013).

Under Sohra Subdivision in East Khasi Hills, Cherrapunji is traversed by a number of deep gorges that have cliff ranges like Nohkalika, Mawiir, Mawpyrkong, Thankarang and Mawiew besides the Shillong-Sohra road near Sohra Bazar. Large, smoothly undulating plateaux are found over the

cliffside. This site is home to almost 30% of the total globally-known population of the Dark-rumped Swift or Khasi Hills Swift *Apus acuticauda*.

The climate is sub-tropical monsoon with distinct wet and dry seasons. The long wet monsoons are from May to October and cold dry from November to February with a short spring during March-April. The temperature varies from a maximum 25 °C to a minimum of 3 °C. Relative humidity ranges from 47% to 92%. Frosted dew is also observed early morning in different parts of Cherrapunji during January.

The vegetation of Cherrapunji is quite peculiar and has a shola-like appearance. Vast tracts of short as well as tall grassland and patches of crooked forest occur on the slopes along the streams and rivulets (Tripathi *et al.* 1995). The

local people regard most of the patches as ‘sacred groves’. However, ecologists believe that this landscape has emerged in Cherrapunji due to deforestation and traditional *jhum* cultivation in the past (Tripathi *et al.* 1995). Broadleaf Evergreen Forest is found on the steep slopes below cliffs and gorges.

Waterfalls and scenic beauty attract many tourists to this area. Cherrapunji and its surroundings have many small and large-sized ‘sacred groves’, which are refuge to a number of species of birds and other fauna. The Mawmai Sacred Grove is the largest among them with an area of 600 ha.

AVIFAUNA

About 153 bird species have been recorded till now in this IBA (Ahmed *et al.* 2004), particularly hill birds such as Mountain Bamboo Partridge *Bambusicola fytchii*, Black Eagle *Ictinaetus malayensis*, Himalayan Black Bulbul *Hypsipetes leucocephalus*, Flavescent Bulbul *Pycnonotus flavesceus*, Orange-bellied Leafbird *Chloropsis hardwickii*, Ashy Bulbul *Hemixos flavela*, Striated Prinia *Prinia criniger*, Black-throated Prinia *Prinia atrogularis*, Small Niltava *Niltava macgrigoriae*, Large Niltava *Niltava grandis*, Rufous-winged Fulvetta *Alcippe castaneiceps* (*Pseudominla castaneiceps*), Chestnut-headed Tesia *Tesia castaneocoronata* (*Oligura*

VULNERABLE

Dark-rumped Swifts	<i>Apus acuticauda</i>
Tawny-breasted Wren-babbler	<i>Spelaornis longicaudata</i>

ENDEMIC BIRD AREA 130: EASTERN HIMALAYAS

Dark-rumped Swifts	<i>Apus acuticauda</i>
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castaneocoronata), Whiskered Yuhina *Yuhina flavicollis* and Grey-hooded Warbler *Seicercus xanthoschistos* (*Phylloscopus xanthoschistos*).

Ahmed *et al.* (2004) carried out monitoring of Dark-rumped Swifts in Cherrapunji and the surrounding sacred groves from 2001–2004. Around 250–300 Dark-rumped Swifts were observed at Noh-ka-likai and 25–30 birds from Noh-snigh-thiang in March 2004.

This site is selected as an IBA on the basis of the presence of Vulnerable Dark-rumped Swifts. The species has >30% of its globally-known population. This bird is specialized to live in the crevices present on the perpendicular cliffs in this wettest place in India.

Abidur Rahman (*pers. comm.* 2014) describes this area as a good habitat of the Vulnerable Tawny-breasted Wren-babbler *Spelaornis longicaudata* along with the Dark-rumped Swift *Apus acuticauda* (VU). Other important species recorded in this IBA are Amur Falcon *Falco amurensis*, Common Kestrel *Falco tinnunculus*, Black Eagle *Ictinaetus malayensis*, Bonelli’s Eagle *Aquila fasciata*, Mountain Hawk-



Dark-rumped Swift *Apus acuticauda* in flight. Nearly 70% of the world’s population of this species is believed to be around Cherrapunji

eagle *Nisaetus nipalensis*, Besra Sparrowhawk *Accipiter virgatus*, Eurasian Sparrowhawk *Accipiter nisus melaschistos*, Northern Goshawk *Accipiter gentilis*, Grey Sibia *Malacias gracilis*, Crested Finchbill *Pycnonotus canifrons*, Flavescent Bulbul *Pycnonotus flavesceus*, Himalayan Black Bulbul *Hypsipetes leucocephalus*, Green-tailed Sunbird *Aethopyga nipalensis*, Eurasian Crag-martin *Ptyonoprogne rupestris*, Chestnut-crowned Laughingthrush *Garrulax erythrocephalus*, Spot-breasted Scimitar-babbler *Pomatorhinus erythrocnemis*, Streak-breasted Scimitar-babbler *Pomatorhinus ruficollis*, Golden Bush-robin *Tarsiger chrysaeus*, Himalayan Red-flanked Blue-tail (Himalayan Red-flanked Bush-robin) *Tarsiger rufilatus*, Rusty-capped Fulvetta *Schoeniparus dubius*, Grey-sided Bush-warbler *Oligura brunnifrons*, Grey-hooded Warbler *Phylloscopus xanthoschistos*, Grey-cheeked Warbler *Seicercus poliogenys*, Whistler's Warbler *Seicercus whistleri*, Yellow-browed Warbler (Yellow-browed Leaf-warbler *Phylloscopus inornatus*), Darjeeling Pied Woodpecker *Dendrocopos darjellensis*, Chestnut-bellied Nuthatch *Sitta cinnamoventris*, Velvet-fronted Nuthatch *Sitta frontalis*, Green-backed Tit *Parus monticolus*, Yellow-cheeked Tit (Black-spotted Yellow Tit) *Parus spilonotus*, Eastern Jungle Crow *Corvus [macrorhynchos] levillantii*, and Hill Prinia *Prinia supercilialis*.

OTHER KEY FAUNA

There are not many larger mammals in this area, only Himalayan Serow *Capricornis thar* is reported to be present.

LAND USE

- Grassland plateau
- Sacred grove
- Evergreen forest on the gorges

THREATS AND CONSERVATION ISSUES

- Hunting
- Habitat Destruction
- Firewood collection

Extensive deforestation has taken place in Cherrapunji during the last two decades and currently, remnants of forests survive in deep gorges and other inaccessible areas. Even the sacred groves are subjected to unsustainable exploitation owing to firewood collection. Conservation education among the locals is likely to improve the current conservation scenario.

Traditional hunting using live decoy and gum is a common practice among the young generation, along with the more traditional catapult. Even small birds are not hunted.

Some Khasis keep birds as pets in cages. Orange-bellied Leafbird is the most common pet, which is used as a decoy to attract birds and catch them with lime sticks to which birds become glued (Ahmed *et al.* 2004).

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